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Original Articles.

UNUSUAL CURE OF LARGE HEMANGIOMA.

By DONALD S. ADAMS, M.D., WORCESTER, MASS.

[From the Surgical Service of the Memorial Hospital.]

ANNIE C., aged five days, one of twins, for cephs delivery, admitted to Memorial Hospital December 19, 1920. Service of Dr. W. C. Seelye. Diagnosis, tumor of right chest wall. Patient delivered by outside physician, who noticed large tumor at time of birth. Inasmuch as it did not decrease in size, he aspirated, getting away several cubic centimeters of blood. Tumor became somewhat larger on subsequent days, so that it was thought best to have hospital care.

Examination in hospital showed poorly nourished infant, weighing six pounds, eleven ounces. Hemoglobin, 30%. Differential count: polymorphonuclear leucocytes, 30%; small lymphocytes, 55%; large lymphocytes, 5%; transitional, 10%. The red cells showed normoblasts and mitotic nuclei. Attached to the right chest wall along mid-axillary line, by a sessile pedicle, was a hemangioma, rather malignant in appearance, lobulated, and rather tense,

with a port wine colored stain near its apex, where the aspiration had been done. Measurements at that time were 17.5 cm in length, 15 cm. in width, and 35 cm. at base or greatest circumference. Rest of physical examination was negative.

There was a diversity of opinion in regard to treatment, but the surgeon in charge of the case chose, wisely, to wait in order to get the patient in better shape, if possible. A formula was prescribed and iron given daily in five-grain doses. During the week, an x-ray of the chest was taken which only showed the tumor outline, and made clear that it had no intrathoracic or bony origin.

The following bedside notes made on the case by the internes in charge, will make clear the course of the case:

December 23: No increase in size of tumor; no change in child's condition. Weight remains about the same.

December 27: No change noted. Is taking formula fairly well.

December 31: Tumor has increased in circumference $3\frac{1}{2}$ cm. Is darker in color. Child seems irritable and takes formula poorly. Temperature, which has been slowly rising, reached a maximum of 102° F. (rectal). Baby's weight,



6 pounds, 15 ounces. No cause can be found for this rise, unless it is due to the tumor, either an inflammatory process or absorption from tumor mass.

January 4, 1921: Tumor has increased in size $2\frac{1}{2}$ cm. in length, $2\frac{1}{2}$ cm. in width and $2\frac{1}{2}$ cm. in circumference, a symmetrical en-

largement. It is darker in color and in proportion the child seems even smaller. Temperature still up and septic in type, varying from 99° F. in the morning to 101° F. at night. Baby weighs 7 pounds, 1 ounce. Hemoglobin and differential count show no change. (Unfortunately, there is no record of a white count.)

January 10: Patient in poor condition. Tumor remains about the same size, but baby is losing flesh and takes nourishment poorly. Placed on dangerous list.

January 20: Temperature down for four days now. Patient's condition more satisfactory. Tumor appears to be decreasing in size. In places it has broken down and sloughed, and from various places, a slight bloody discharge is noted. Baby weighs 6 pounds, 14 ounces, and takes its nourishment well.

January 30: Tumor is about half its original size. It is contracting down, more firm in feel and continues to discharge a moderate amount of bloody fluid. Last weight of baby, 7 pounds, 5 ounces, a perceptible gain, considering rapid decrease in size of tumor.

February 9: Tumor has changed perceptibly. It is now 8 cm. long, 6 cm. wide, and 12 cm. in circumference. It is blackish in color, having almost the appearance of a malignant melanotic mole. There is no more discharge. Baby is gaining an ounce or more a day.

February 19: Patient's condition excellent. Weighs 7 pounds, 14 ounces. Tumor practically gone, there being only a slight protrusion of reddish, dense tissue.

February 27: Patient discharged home, well. Weight 8 pounds, 1 ounce. Hemoglobin 50%. Tumor gone, leaving only a reddish scar to mark the size of a preëxisting problem which presented little apparent hope for a cure, either by radical or conservative methods.

CONCLUSIONS.

1. The cure was not spontaneous. The credit is due to the outside physician who introduced the exploring trocar and to the surgeon in charge of the case, who deemed it safer to wait and to watch its progress before attempting anything radical.

2. The rise in temperature, lasting from the last of December to the middle of January, is significant. At the end of this time, the tumor began to decrease in size. Either there was a secondary infection following the introduction of the trocar, or a thrombotic process was started, thus leading to the subsequent slough. It may have been a combination of the two. At any rate, its disappearance was not unlike the results obtained in the use of Coley's serum, both locally and in the general reaction, as evidenced by the temperature.

EXPERIENCE IN MASSACHUSETTS AND A FEW OTHER PLACES WITH SMALLPOX AND VACCINATION.

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1. SMALLPOX IN BOSTON BEFORE AND AFTER VACCINATION

IN Boston in 1702, with a population of about 7,000, there were 302 deaths from smallpox or 43 per 1,000. In 1721 there were 850 deaths out of 11,000 people or over 77 per 1,000. Over 6,000 people had smallpox that year. These were the first two of seven severe epidemics that occurred at intervals of about 15 years during the 18th Century in Boston. (See Appendix, Table 1, "Smallpox in Boston, 1700-1800.")

To get an idea of what 77 deaths per 1,000 population in one year means, we need only remember how terrible we considered the epidemic of influenza in 1918, and to recall that it caused only 8 or 9 deaths per 1,000 people or about 1/8 or 1/9 the mortality from smallpox in 1721. An ordinary annual death rate from all causes in Massachusetts today is about 15 per 1,000. So the smallpox outbreak of 1721 in Boston alone caused as many deaths per 1,000 people as would occur now from all causes in 5 years.

Such a disease was smallpox in this city in the 18th Century. In England only 1 person in 25 escaped it, (Mathewson in "The Prophylactic Value of Vaccination" U. S. P. H. Reprint No. 23) and this probably applied to

Massachusetts. It was known in those days that smallpox by inoculation was much milder than smallpox in the natural way. Fatality rates from inoculated smallpox and natural smallpox were carefully kept in Boston during this century. Natural smallpox killed from 9.5% to 34.4% of its victims in Boston from 1700-1800 while smallpox by inoculation had a fatality rate ranging from 1/2 to 3%. So ruthless was the disease and so terrific its disfigurements that from 2,000-8,000 people were inoculated in Boston during each of the last 5 epidemics of that century. Surely a disease must have been terrible if thousands of inhabitants of one small city in seeking to escape it were willing to risk a measure that involved a fatality of 1/2 to 3%.

Then came vaccination. In 1796, in England, Jenner had proved that cow pox infection protected against smallpox and had introduced the practice of immunizing individuals against smallpox by inoculating them with cow pox. This was called "vaccination."

On July 8, 1800, Dr. Daniel O. Waterhouse performed the first vaccination ever done in America on his son in this city. Though there was opposition to the practice, it rapidly came into general use and in March, 1809, the law of the Commonwealth made it the duty of the towns to choose committees to have charge of the vaccination of the inhabitants. Under the law of 1797 smallpox had to be isolated in a separate house.

From 1800 to 1837 under compulsory vaccination smallpox was almost completely con-

TABLE I.—SMALLPOX IN BOSTON, MASS., 1700-1800.

Years	Cases	Deaths	Percent. of pop.		Natural		Per cent.	Inoculated		Per cent.
			Cases	Deaths	Cases	Deaths		Cases	Deaths	
1721	6,006	850	54.6	7.7	5,789	844	14.8	247	6	2.4
1750	4,000	500	26.6	3.3	3,600	468	13.5	400	12	3.0
1782	7,669	649	46.9	3.6	5,645	659	9.7	2,124	30	1.4
1784	5,646	170	36.4	1.1	689	124	18.5	4,977	46	0.9
1776	5,292	47	44.1	1.0-a	304	29	9.5	4,988	18	0.5
1778	2,243	71	16.6	0.4-b	122	42	34.4	2,121	29	0.9
1792	3,346	198	46	1.0-c	232	33	14.2	3,114	165	1.6

^aAmerican Medical Association, Vol. L, II, 1849, based on Shattuck's "Vital Statistics of Boston" p. 18. In 1702 there were 302 deaths in Boston or 4.3% of the population.

(a) should be 0.4; (b) should be 0.5; (c) should be 1.1. Errors in calculation in the original.

TABLE II.—SMALLPOX IN BOSTON, 1800-1900.*

Year	Pop.	Deaths	Year	Pop.	Deaths	Year	Pop.	Deaths
1811	34,288	2	1841	97,908	87	1871	286,082	28
1812	35,280	-	1842	101,864	40	1872	286,704	738
1813	36,284	-	1843	106,904	93	1873	331,800	902
1814	37,280	-	1844	110,441	-	1874	331,386	2
1815	38,274	4	1845	118,172	31	1875	341,919	1
1816	39,279	-	1846	120,108	22	1876	346,004	2
1817	40,284	-	1847	122,220	23	1877	350,134	4
1818	41,288	-	1848	120,618	21	1878	354,322	-
1819	42,292	-	1849	126,210	21	1879	358,664	-
1820	43,296	-	1850	142,044	182	1880	362,633	1
1821	44,298	-	1851	141,208	65	1881	368,180	6
1822	45,291	-	1852	146,679	12	1882	375,680	8
1823	46,288	-	1853	150,596	6	1883	379,129	1
1824	46,284	1	1854	155,484	118	1884	384,780	1
1825	46,281	1	1855	160,404	132	1885	390,268	1
1826	46,280	-	1856	165,320	79	1886	401,374	-
1827	46,283	2	1857	167,218	2	1887	412,063	-
1828	46,147	2	1858	170,688	3	1888	424,374	1
1829	46,708	-	1859	174,227	186	1889	434,308	2
1830	47,292	1	1860	177,840	182	1890	448,477	-
1831	48,284	4	1861	180,044	7	1891	457,772	-
1832	48,276	2	1862	185,487	13	1892	467,280	-
1833	49,280	-	1863	186,380	11	1893	476,048	4
1834	49,280	4	1864	189,331	113	1894	486,330	22
1835	49,280	7	1865	192,318	118	1895	501,085	-
1836	49,484	8	1866	194,808	61	1896	516,308	-
1837	50,283	13	1867	227,633	144	1897	528,712	-
1838	51,288	3	1868	231,024	8	1898	541,857	-
1839	52,292	60	1869	244,841	6	1899	555,057	6
1840	53,283	113	1870	250,828	32	1900	560,882	-

* Figures to 1850 taken from *Statbook on "Vital Statistics of Boston"*. Thereafter from other authentic records, mainly the reports of the Secretary of State's Office.

Period	Total Deaths	Total Population	Death rate per 100,000 per year
1811-1836	87	1,385,088	2.7
1837-1850	1022	2,376,528	66.2
1851-1870	1860	3,761,008	82.1
1871-1900	61	11,857,102	.5

trolled in Boston and Massachusetts. In Boston there were but 37 deaths from 1811 to 1837, a rate of 2.7 deaths per 100,000 population per year. Compare this with 4 to 77 per 1,000 per year, which had been the death rates from smallpox in the preceding century in the same city during the epidemic years.

During these 37 years there grew up a generation who did not know at first hand the awful horrors of smallpox unhampered by vaccination. Living under its benefits they failed properly to appreciate the importance of vaccination as a factor against smallpox. The appointment of vaccination committees was in 1836 made voluntary with the towns and cities and in 1837 other salutary laws in regard to the disease were repealed.

From 1837 to 1855 there was no compulsory vaccination in the state and for those 18 years there was a total of 1,032 deaths from small-

TABLE III.—SMALLPOX IN BOSTON, 1901-1920.

Year	Population	Deaths
1901	567,617	74
1902	574,685	180
1903	581,357	13
1904	586,380	-
1905	590,380	1
1906	613,078	-
1907	628,342	-
1908	643,609	-
1909	655,878	1
1910	679,048	-
1911	694,811	1
1912	715,524	-
1913	724,489	-
1914	736,462	-
1915	748,451	-
1916	760,400	-
1917	772,370	-
1918	784,340	-
1919	796,310	-
1920	808,280	-
Period	Deaths	Population
1901-1920	280	13,681,807
Death rate per 100,000 per year		

pox or an annual rate of 46.2 per 100,000 or just 17 times as much mortality.

In 1855 parents and guardians were required by law to vaccinate all children at two years and revaccinate thereafter at the order of the Mayor. School Committees were required to exclude children not duly vaccinated. The town governments were directed to see to the vaccination of all inhabitants. The penalty for refusing vaccination was a \$5.00 fine. No particular machinery was designated for carrying out this law and none existed until the State Board of Health was established in 1869 with advisory powers and the Boston Board of Health in 1872 with actual power to enforce what was needed. The Boston Board, in fact, came into existence mainly because of the severe outbreak of smallpox in 1872. These vaccination laws of 1855 were poorly or but sporadically enforced. There had been allowed to grow up an unvaccinated population during the previous 18 years. This group was particularly hard to reach and largely escaped. Smallpox being one of the most contagious diseases known to man, general vaccination was effective against it in proportion to the percent. of the entire population properly subjected to it. So that from 1855 to 1873 with poorly enforced laws and with so large a group unvaccinated, there occurred 1,969 deaths from smallpox in Boston, or 52.1 deaths annually per 100,000.

In the whole state there were 3,909 smallpox deaths during the same period or a rate of only 15.4 per 100,000 per year. The state figures, of course, included Boston. In other words, Boston which on account of its congestion needed protection most, had protected itself least and, as a consequence, had had about 4 times as many deaths in proportion to population as had the rest of the state.

After 1872 with the Boston Board setting a good example and the State Board in its advisory capacity bringing pressure to bear on local boards, the existing laws began to be enforced strictly. The result shows in the figures for 1872 to 1900, when for the first 28 years under enforcement of the vaccination laws the total number of deaths was 61, the rate per 100,000 per year was .5.

Year		DEATHS PER 100,000
1811-1837	Compulsory vaccination	2.7
1837-1855	Voluntary vaccination	46.2
1855-1872	Vaccination required.	52.1
	No proper machinery to enforce. Enforcement neglected. A large unvaccinated population from the previous period.	
1872-1900	Vaccination laws enforced to large extent.	.5
1900-1920	Vaccination laws enforced to large extent. Much agitation against vaccination.	2.

TABLE IV.—EXPERIENCE WITH SMALLPOX IN EUROPE BEFORE AND AFTER VACCINATION.

Before Vaccination	Period	Locality	Mean Annual Mortality From Smallpox per 1,000,000 population.	
			Before Vaccination	After Vaccination
1777-1808	1807-1880	Lower Austria	2,484	340
1777-1808	1807-1880	Upper Austria and Salzburg	1,421	501
....	....	Syria	1,082	446
....	....	Illyria	518	244
1777-1808	1838-1880	Trieste	14,046	122
1777-1808	1807-1880	Tyrol	911	170
....	....	Bohemia	2,174	215
....	....	Moravia	5,405	285
....	....	Austrian Silesia	5,612	198
....	....	Galicia	1,194	678
....	....	Bukovina	3,627	518
1776-1780	1810-1880	East Prussia	3,321	556
1780	1816-1880	Posen	1,911	743
1776-1780	1810-1880	Brandenburg	2,181	181
1776-1780	1816-1880	Westphalia	2,845	114
....	....	Rhine Province	808	80
1791-1805	1810-1880	Berlin	3,442	178
1780	1810-1880	Pomerania	1,774	130
1776-1801	1810-1880	Sweden	2,080	158
1781-1800	1801-1880	Copenhagen	3,128	286

From 1900 to 1920 there was considerable agitation against vaccination and though the vaccination laws continued to be generally enforced there were during this period 280 deaths from smallpox or a death rate of 2 per 100,000.

We have, therefore, for Boston since 1800 this summary of the effect of vaccination on mortality from smallpox.

II FURTHER EXPERIENCE WITH VACCINATION PROVING ITS EFFICIENCY.

A. In Europe. For further proof of the efficacy of vaccination see Table IV (in appendix) entitled "Experience with Smallpox in Europe Before and After Vaccination," from "Hirsch's Geographical and Historical Pathology," Vol. I, P. 123.

B. In Japan. Japan, though surrounded on all sides by a territory where vaccination is rarely practiced and where there has existed some of the most virulent smallpox the world has known, has admirably controlled smallpox within her territories. Since 1874, when compulsory vaccination went into effect, there have been up to 1910 but six years when the death rate was over 10 per 100,000 (one year rising to 48.7). See Kitasato "Vaccination in Japan," Journal of the A. M. A. March 25, 1911.

TABLE V.—SMALLPOX AMONG VACCINATED AND UNVACCINATED RECENTLY REPORTED FROM FOUR CANADIAN PROVINCES.

	Total	Vaccinated		Unvaccinated		Total
		Cases	Deaths	Cases	Deaths	
City of Montreal 1915-1920		50	0	181	0	231
City of Quebec 1915 to Feb. 25, '21.		1	0	99	0	100
Quebec - 1920		15	0	230	0	245
New Brunswick - 1919		18	0	1,300	0	1,318
Ontario 1919 and 1920		44	0	42	0	86
Alberta - 1920		44	0	6	0	50
Totals		61	0	1,600	0	1,661

Notes: Only cases that were especially investigated as to their vaccination status are included in the table. There were a great many cases on which no information of the kind was obtained.

C. In Cuba and the Philippines. Cuba and the Philippines under American rule are good examples of how smallpox can be cleaned up by vaccination as the main weapon.

D. In Canada. Recently the Department of Public Health wrote the Health Commissioners of six Canadian provinces in regard to their figures on the number of smallpox cases and deaths in 1919 and 1920 in those provinces among the vaccinated and unvaccinated and also in regard to their experiences with vaccination as a preventive measure. Six replies were received but the information was not available from two provinces. Of 49 deaths reported, all were in unvaccinated with the possible exception of one, the vaccination status of whom was unknown. Of 1861 cases where observations were made on the vaccination status, 1800 were in unvaccinated and but 61 in vaccinated. (See appendix, Table V.)

The Health Officer of Nova Scotia in a letter written in February, 1921 stated that of 24,532 vaccinations in that province for 1919 there were but 21 complaints of disability. Each of these was inquired into. The worst condition complained of was in a man who suffered from erysipelas infection of the wound which confined him to bed for 4 or 5 days. He recovered with no permanent disability.

Dr. M. M. Seymour, Commissioner of Public Health of Saskatchewan, in a letter to this Department, dated February 17, 1921, says:

NUMBER OF SMALLPOX CASES REPORTED IN CERTAIN STATES FOR THE YEARS 1916 TO 1920.

	1916	1917	1918	1919	1920
Alabama	4,000	1,000	1,000	200	200
California	4,000	1,000	1,000	200	200
Colorado	4,000	1,000	1,000	200	200
Illinois	4,000	1,000	1,000	200	200
Indiana	4,000	1,000	1,000	200	200
Iowa	4,000	1,000	1,000	200	200
Kansas	4,000	1,000	1,000	200	200
Michigan	4,000	1,000	1,000	200	200
Minnesota	4,000	1,000	1,000	200	200
Mississippi	4,000	1,000	1,000	200	200
Montana	4,000	1,000	1,000	200	200
Nebraska	4,000	1,000	1,000	200	200
Nevada	4,000	1,000	1,000	200	200
New Jersey	4,000	1,000	1,000	200	200
New York	4,000	1,000	1,000	200	200
North Carolina	4,000	1,000	1,000	200	200
Ohio	4,000	1,000	1,000	200	200
Oregon	4,000	1,000	1,000	200	200
Pennsylvania	4,000	1,000	1,000	200	200
Texas	4,000	1,000	1,000	200	200
Virginia	4,000	1,000	1,000	200	200
Washington	4,000	1,000	1,000	200	200
West Virginia	4,000	1,000	1,000	200	200
Wyoming	4,000	1,000	1,000	200	200

(Taken from Statistical Bulletin, Metropolitan Life Insurance Company, January, 1921 issue).

INCOMPLETE REPORTS OF SMALLPOX IN THE UNITED STATES, MAINLY FROM THE REGISTRATION AREA.*

Year	Deaths	Cases
1909	150	24,099
1910	415	30,382
1911	134	21,767
1912	301	23,204
1913	289	37,109
1914	93	33,770
1915	174	28,798
1916	48	16,480
1917	297	46,137
1918	345	69,619
1919	355	-
Total	2,974	332,515

*Based on U. S. Public Health Service Annual Reports.

"About 1900 an outbreak of 125 cases of smallpox occurred among the half-breeds in the Qu'Appelle district. This number of cases of the disease was in a half-breed population of approximately 300, in the vicinity of four large Indian reserves. Smallpox was brought among these people by a visitor from Montana, who had recently had the disease. Four deaths took place in this epidemic. Of the 125 who had smallpox, only one person had been vaccinated, and that about thirty years previously.

"In connection with this outbreak of smallpox, the following facts are of importance in showing the value of vaccination:

"Everyone of the half-breeds not vaccinated developed smallpox; not a single case of smallpox took place among the Indians, near whom the half-breeds lived, and with whom they mingled freely. The Indians being wards of the Government, vaccination was compulsory among them. At the Government Indian Industrial School was a population of two hundred and fifty, more or less exposed to the infected half-breeds, but as all those of the Industrial School were protected by vaccination, not a single case of smallpox developed.

"In 1908, two men from North Dakota had smallpox in a hotel at Estevan. After three or four days' illness, and the breaking out of the smallpox rash, they were sufficiently well to get out of bed and wander about the restau-

rants, pool rooms, barber shops and other public places; after two days of this wandering about I was notified and left at once for Estevan: when I heard the extent to which the people of the town had been exposed by these two men, I quarantined the town, and informed the Mayor that the quarantine would not be lifted until I had his written assurance that every man, woman and child in the town had been vaccinated. It took just two days to carry this into effect, with the result that only one additional case of smallpox broke out. No comment is needed to show the value of vaccination in preventing an outbreak of smallpox, after the exposure of so many persons.

"Another outbreak which threatened to reach an epidemic stage, broke out in a rural district, and on enquiries, it was found the focus of infection was the presence, at a dance, of a man, also from the States, mingling with the company while suffering in the pustular stage of the disease. A large area embracing six rural municipalities was immediately quarantined and compulsory vaccination employed with the result of controlling it within the limits. About a dozen cases developed but the action taken prevented its spreading.

"I might go on giving similar instances showing how vaccination has put beyond all doubt its efficiency as a preventive agent against smallpox, but let me give one other, and one where the disease had every chance to spread and get beyond control. Smallpox broke out in the lumber camps at Big River, where in

SMALLPOX VACCINE VIRUS DISTRIBUTED BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH SINCE OCTOBER, 1904.*

Year	Doses
From October, 1904 to, and including, 1912	476,465
1913	112,009
1914	109,736
1915	104,992
1916	130,046
1917	180,821
1918	217,680
1919	194,277
1920	188,517
Total	1,714,501

Amount since January 1st, 1913 1,237,708

*Based on reports (Annual) of the State Board of Health and the State Department of Public Health.

TABLE VI.—RECORDS OF 185 CONSECUTIVE CASES OF SMALLPOX OCCURRING IN MASSACHUSETTS IN 1894.
(THE TOTAL INCIDENCE OF THAT YEAR.)

AGE	VACCINATED			UNVACCINATED			OF UNKNOWN OR DOUBTFUL HISTORY			TOTAL		
	Cases	Deaths	Fatality Rate	Cases	Deaths	Fatality Rate	Cases	Deaths	Fatality Rate	Cases	Deaths	Fatality Rate
Under 1	0	0	—	7	5	71.0%	0	0	—	21	3	14.2%
1-4	1	0	0	20	3	15.4%	0	0	—	7	5	71.4%
5-9	2	0	0	14	0	0	0	0	—	16	0	0
10-14	3	0	0	3	0	0	0	0	—	6	0	0
15-19	7	1*	14.3%	6	1	16.7%	1	0	—	14	2	14.2%
20-29	33	2†	6.0%	23	7	30.4%	7	2	28.5%	63	11	17.4%
30-39	16	2*	12.5%	10	5	50.0%	1	0	—	27	7	26.0%
40-49	13	1*	7.7%	2	1	50.0%	4	1	25.0%	19	3	15.8%
50+	8	0	0	0	0	0	2	1	50.0%	10	1	10.1%
Unknown	2	0	0	0	0	0	0	0	0	2	0	0
TOTAL	85	6	7.1%	85	22	25.9%	15	4	26.7%	185	32	17.3%

* Vaccinated in infancy.

† Case vaccinated in infancy; the other presented doubtful scar, but previous vaccination was claimed.

addition to the village population of six hundred, there were nearly three thousand men. The outbreak was not reported until the disease had spread to four different camps; immediate steps were taken to quarantine all the district so as to prevent contact with the City of Prince Albert. With the aid of the R. N. W. M. Police, this measure was effective and egress or ingress to Big River Lumber area was stopped. Meanwhile all in the area were being vaccinated (over 3,000 persons) and the results were wonderful considering the close contact among the men in their bunk houses.

"Altogether thirty-six cases occurred, chiefly among those who came in close contact with the early cases. There were no deaths, and out of the large number vaccinated only two or three had sore arms for a few days."

E. A Study of the Vaccination Histories of 185 Consecutive Cases of Smallpox. In the 1894 report of the Massachusetts State Board of Health is a complete vaccination history of each case of smallpox that occurred during that year. Inasmuch as a large number of consecutive cases is involved over a period of a year with no omissions, this series of cases gives a pretty true idea of the protection afforded by vaccination and the length of time for which the protection is effective.

Of the 185 cases, 85 were among unvaccinated, 85 among persons claiming vaccination, and in 15 cases the history was not obtainable. (Table VI.)

III THE SEVERE TYPE OF SMALLPOX STILL EXISTS.

That there is still a severe type of smallpox in existence was illustrated by the New Bed-

ford outbreak in 1915 and again in the winter of 1917 by an outbreak of the disease that occurred in Worcester, Fitchburg, Shrewsbury and Webster.

From May 14 to July 28, 1915 there were 23 cases of smallpox in New Bedford, with 10 deaths, a fatality of 43.3%.

The Worcester outbreak was caused by a case of smallpox that had occurred on the S. S. Kristianofjord in December, 1916 before its arrival in New York. Despite the fact that passengers were held 14 days after the isolation of this case, in Massachusetts, Minnesota and New York three outbreaks were caused by two secondary cases among passengers of this ship as follows:

STATE	CASES	DEATHS	FATALITY RATE
Massachusetts	48	10	20.8%
Minnesota	92	17	18.5%
New York*	8	2	25%
TOTAL	148	29	20%

IV THE QUESTION OF DANGER FROM VACCINATION.

A brief résumé of the varying techniques of vaccination practiced at various times up to the present will cover this feature fully.

At first vaccination was done from human to human or the material was dried and later used to vaccinate with. There was then a genuine danger that syphilis and various infections might be transferred from wound to wound. This did happen in a very small proportion of cases.

In 1811 Galbiati, an Italian physician, first suggested that the virus be transferred from

* The original New York case got its infection from Worcester.

SMALLPOX IN MASSACHUSETTS SINCE 1850.

Note:—Statistics prior to 1850 are meagre. The statistics of the City of Boston accompanying these statements were well kept and perhaps present an accurate picture of smallpox as it existed in the entire state prior to 1850. In fact, in the early years Boston constituted a very considerable portion of the population of the state.

Year	Population	Deaths	Year	Population	Deaths
1850	894,514	334	1885	1,942,141	19
1851	1,020,674	117	1886	1,990,174	-
1852	1,047,618	33	1887	2,055,821	3
1853	1,078,083	38	1888	2,118,131	8
1854	1,103,341	207	1889	2,176,183	6
1885	1,132,349	325	1890	2,236,843	1
1886	1,151,488	140	1891	2,286,811	3
1887	1,170,686	23	1892	2,336,894	2
1888	1,190,683	12	1893	2,382,217	9
1889	1,210,646	235	1894	2,446,606	33
1890	1,231,068	334	1895	2,500,183	-
1891	1,236,178	33	1896	2,556,437	0
1892	1,249,326	40	1897	2,616,048	4
1893	1,262,617	42	1898	2,679,048	-
1894	1,280,780	342	1899	2,741,470	14
1895	1,297,031	221	1900	2,808,346	3
1896	1,306,800	141	1901	2,868,047	97
1897	1,336,979	194	1902	2,906,200	294
1898	1,376,012	20	1903	2,939,728	22
1899	1,417,124	89	1904	2,970,064	9
1890	1,457,361	131	1905	3,018,972	2
1891	1,494,307	294	1906	3,086,029	-
1892	1,532,320	1,039	1907	3,167,186	6
1893	1,571,142	668	1908	3,236,343	3
1894	1,611,018	26	1909	3,306,600	1
1895	1,651,912	34	1910	3,380,181	-
1896	1,677,361	31	1911	3,446,079	2
1897	1,705,181	34	1912	3,515,007	1
1898	1,729,412	2	1913	3,577,008	-
1899	1,766,048	7	1914	3,645,863	-
1900	1,783,086	38	1915	3,706,931	9
1901	1,813,618	47	1916	3,739,364	-
1902	1,845,008	46	1917	3,774,797	10
1903	1,876,806	8	1918	3,804,231	-
1904	1,909,610	3	1919	3,836,664	-
1920	3,869,006	1			

calf to calf and vaccinations done from this virus. This method was gradually adopted. Thereafter, the possibility of transferring human diseases was avoided. The only danger now remaining was the danger of infecting the wound or the virus. Vaccination wounds (aseptic methods) were sometimes infected just as other wounds got infected and became sore.

In order to protect against infected virus the National Government now supervises the manufacture of all of it.

A healthy calf is taken. Its abdominal skin is shaved and made aseptic. This surface is inoculated with virus which is absolutely pure. The wound is covered with aseptic dressings. When the vesicles are at the proper stage the calf is chloroformed and all the virus scraped off and saved. This is done under surgical,

aseptic, operating room technique. The calf is killed and an autopsy held. If any disease is found at all, the virus is destroyed and never used. If the calf is healthy the virus is preserved in a solution of glycerine and carbolic acid. These antiseptics in the right strength do not kill cow pox virus. They do kill other germs. This virus thus treated is then sealed up in little capillary tubes so that it cannot be infected before use. This is the way the virus is used in Massachusetts today. The State maintains at Forest Hills a Laboratory for the manufacture of vaccine as well as other biological products. This is done in order that the citizens of the State may have the purest products that can be made. Smallpox vaccine is furnished free to all. No commercial vaccine

is used unless a board of health should buy some in an emergency*.

There is then left only the danger from infecting the wound. With the modern surgical technique in use today this can happen only through lack of care on the part of the vaccinator or on the part of the vaccinated persons in properly caring for the wound.

* The commercial products are manufactured under Federal license and supervision and must reach high standards of quality.

MYOCARDIAL LESIONS IN SCHOOL CHILDREN.

By HAROLD W. DANA, M.D., F.A.C.P., BOSTON.

IN Massachusetts, a yearly examination of each child in the public schools is required by law. The conclusions that are here set forth are based upon my continuous observation of 171 public school children over a period of eight school years and upon the records of from six to ten cardiac examinations of each child, within separate school years, by other examiners or by me. Fifty-one other children had been examined five times, or less. Of these children, 42 showed signs of having a bearing upon the matter to be considered here. Thirteen of the 42 children had been examined yearly over a period of only four school years or less; 25 of the 42 had been examined from seven to ten times in consecutive school years.

The surprising fact standing out above everything else in the record of the examinations from year to year of the hearts of these children, was that consecutive examinations did not by any means give proof of the presence of the same cardiac condition previously found, even when made by the same examiner. For instance, a child showing what appeared to be a functional murmur on one or more examinations might later give evidence of the presence of a mitral lesion; sometimes the above condition was reverted. Perhaps a child with a functional heart murmur might seem, the next year, to have a mitral leak, returning the following year to the classification of having a functional condition only.

During recent years, the interest in cardiac conditions has turned away to a great extent, from the consideration of valve lesions as such, toward the consideration of the heart muscle. We are all familiar with the disappearance of murmurs of valve origin when the muscular power of the heart decreases, and we recognize that the various murmurs of mitral disease al-

ter from day to day and even from minute to minute. This change in the type or signs, of an established organic condition, has nothing to do with the to and fro swing between organic and functional defects here discussed.

In explanation of such a shifting back and forth of the diagnosis in a particular individual examined year by year, only three possibilities occur to me. First, that the examinations were carelessly or inefficiently made; second, that the ordinary standards used for diagnosis as between organic and functional heart conditions are not serviceable for the purpose; third, that the condition of these particular children changed from year to year. In regard to the first proposition, I may say that if I were not convinced my observations and records were reasonably accurate, and my conclusions therefrom justifiable, I should not be writing this paper, and I certainly should not be publishing abroad the fact of my lamentable lack of precision in cardiac diagnosis. The second and third possibilities, I shall take up in detail later on.

That a relative mitral regurgitation can appear in any adult with a weakened heart muscle is well known. It is also recognized that the same condition occurs in the acute infectious diseases, as evidenced by the appearance of a systolic murmur.¹ This would seem to have no bearing upon the occurrence of relative mitral regurgitation found during the routine examination of children supposed to be well, who were attending school and taking part in all the games and gymnastic work. Yet many of these children, at one or more examinations, developed a murmur to be interpreted as a sign of relative mitral regurgitation, upon an "effort test" of a very mild type, usually "shadow running," for from twenty to forty steps; and the condition found did not seem to differ in any way from that elicited by the effort test in an adult with flabby heart muscle. Some medical men have doubted that measles commonly affects the myocardium, yet it is noteworthy that many of the children showing myocardial insufficiency this year, had passed through an attack of measles in the spring of 1920. Whooping cough was also a factor in some of the cases of this condition found.

Taking the routine examination of the heart in school children as I have seen it made, I think I may say that the school physician places the heart of each child examined in one of three

classes. Either the heart is normal or there is a murmur to be heard; if there is a murmur, either this murmur is functional in origin, or is due to valvular disease of the heart. He may or he may not be more specific as to the nature of the valve lesion. I do not mean to indicate that tachycardia, irregular pulse, or dyspnoea would not be followed up by the careful examiner, but where speed is insisted upon as the chief attribute of a good medical examiner, as is too often the case, this would represent a fair statement of the point of view.

The accepted fundamental requirements for a diagnosis of mitral regurgitation are, that in addition to the presence of the systolic murmur, preferably transmitted to the left of the apex, there should be demonstrated either enlargement of the heart to the left, or failing this, that there should be accentuation of the pulmonary second sound. In civil practice, we considered a heart enlarged where the left border of dullness extended more than 10 cm. from the median line in a man, or 9 cm. in a woman.

A somewhat different standard was accepted for the use of the Draft Boards. While it is not worth while to go into details, the Cardio Vascular Boards in practice did not consider that a man had mitral regurgitation unless, in addition to the murmur, the apex beat was outside the nipple line, or below the sixth rib, or failing this, that the apex impulse was of heaving character. Since the apex beat will average 2 to 2.5 cm. nearer the sternum than will the left border of dullness to percussion, a heart accepted as of normal size under army standards, would be considered to be enlarged 2 to 2.5 cm. according to the standards of civil practice.

Of course, the army standard was fixed for the purpose of securing the service of the greatest number of men fit to serve, and to prevent the escape from service of men who were reasonably fit for duty. While well suited to this purpose, the army standard is too broad in its scope to be suited to the determination in civil practice of the presence of organic heart injury.

Smith,² in tabulating the results of the cardiovascular examinations of 35,000 recruits at Camp Hancock, found the maximal apex impulse to be located 7.5 cm. from the mid-sternal line. This seems to coincide quite closely with the location of the left border of dullness to percussion, found by Goodman and Harris³ to

be from 9 to 10.5 cm. from mid-sternum, regardless of the size of the man.

In a child between 10 and 16 years old, I believe that the apex beat of a heart that is not enlarged, should not be more than 7 cm. to the left of mid-sternum; in a smaller child, not more than 5.5 cm. to 6.5 cm. to the left. Limiting the definition of the size of the normal heart in a child, as above, I think that the accepted standards of civil practice for the diagnosis of a true mitral regurgitation are reasonably satisfactory. Lewis' dictum,⁴ that the diagnosis of mitral regurgitation is always uncertain, is, perhaps, of more interest to university professors than it is to medical examiners in public schools.

True mitral regurgitation is, however, only a small part of the problem under discussion; in fact, I wish to emphasize particularly, that in the routine physical examination of the hearts of supposedly well children, we have centered our attention far too much upon the diagnosis of a valve lesion.

At all events, the presence of a relative mitral regurgitation can be readily diagnosed, and when present, is a certain indication as to treatment. *When a child who shows no cardiac murmur before exercise, develops a blowing systolic murmur at the apex as the result of the effort test, let us say after running forty paces, then that child has a myocardial insufficiency, has developed an acute dilatation of the left ventricle as the result of effort and the murmur is proof of the relative insufficiency of the mitral valve segments.* Usually, in a child, a movement of the apex of the heart, outward or downward, can be demonstrated under these circumstances. This, I feel, is the explanation of some of the alterations in physical signs and cardiac diagnoses from year to year. Probably, in most such children with myocardial decompensation producing a relative mitral regurgitation on exercise, a recent acute infection is the cause. I would like to suggest that, before a child who has had any acute infectious disease, be discharged by his physician, the patient be put through a mild effort test, and that any evidence of myocardial incompetence should prevent the discharge of the patient from observation, and should limit the patient's physical efforts until the evidence of disability has disappeared. Unfortunately, most public school children having measles, are not under the care

of a physician, and with such children, this responsibility falls upon the school physician.

Other signs of myocardial insufficiency that may appear as the result of exercise, are undue and persistent tachycardia, or marked dyspnoea, or cyanosis, or the occurrence of a gallop rhythm following the effort test.

It cannot be emphasized too strongly that any of the acute diseases of childhood, except, perhaps, varicella, and any of the other acute infections, systemic or local, may be the antecedent cause of organic heart disease. Smith, in the article quoted, established a history of measles in 52.6% of his cardio-vascular cases, as against 37.2% for all the other diseases of childhood combined. Tonsillitis appeared in the previous history of 35.93%, and rheumatism in 22.32%. Smith speaks of the "historically harmless" disease, measles, as probably having an evil later effect upon the heart through its sequellae, which are often suppurative. It is, of course, impossible, to prove that if a cardiac patient had measles and tonsillitis as a child, the measles caused the damage to the heart. This brings in a new factor, however. It is the prevalent opinion that injury to the heart is more the result of repeated onslaughts of other infections, than as the result of a single illness. Lutembacher⁵ feels that the prognosis in many cases of chronic endocarditis depends upon the avoidance of a new secondary infection. On this basis, an attack of measles, for instance, might be the "sensitizing" or the "complementary" infection in the series.

When we come to consider the so-called functional or accidental murmurs, there is much evidence on either side of the question. While Lewis, in the article noted, takes the view that even a mitral regurgitation is not disabling and does not diminish a patient's exercise tolerance, hence as much entitling the man to no disability pension, there is, on the other hand, much doubt expressed as to the innocuousness of "functional" murmurs. Babcock⁶ argues that even if transient, a so-called functional murmur is, during its presence, an organic and not an "accidental" murmur. Kylin,⁷ in reporting upon 513 apparently healthy recruits and 300 male hospital inmates of the same age, found 21.77% with accidental murmurs. Almost all of those with murmurs showed a slightly increased blood pressure, and a somewhat lowered capacity for physical endurance. Perhaps the weightiest evidence of all, upon either side, is

furnished by the statistics of the life insurance companies in regard to the "life expectation" of those with "accidental" murmurs. Fisk,⁸ in giving the experience of the company of which he is the medical director, states that in a group of "risks" observed over a period of years, those having "functional" heart murmurs showed a 50% greater mortality than the normal life insurance mortality for the group should have been. Policy holders with characteristic murmurs of valve lesions other than of the aortic valve, died at a rate of from 50% to 100% greater than that of the life mortality tables. Cases of arrhythmia and tachycardia died at a rate of 150% to 175% greater than that of the tables. Now, the other pathological conditions in these two groups of men, those with "functional heart murmurs" and those without murmurs, must have averaged about the same. Probably as many died of tuberculosis, of cancer, or diabetes, or of any other condition from the one group, as did from the other. If, in a large series of cases, observed over a long period, 50% more men who had "functional heart murmurs," died, than of those who did not have heart murmurs, it is probable that under the name "functional heart murmur" there was included a condition predisposing to earlier death. To return again to the school children, I am convinced that a "functional" heart murmur persisting over several yearly examinations, is certainly a sign of some organic change.

When one comes to the bearing of all this upon school routine and the treatment of the child, I wish to say that I believe the use of digitalis should be reserved for the treatment of those hearts only that show decompensation under normal living conditions; accordingly, I plan, insofar as possible, not to refer these children to the family physician for treatment; for the family physician will either say that the child is perfectly well and can do anything, or he will give the child digitalis. Those children with acute dilatation on exercise as the result of an acute infection, would be better for staying in bed for a part of each day at least. To the other children, with myocardial weakness, I feel that I can give all needful care, in the supervision of the school gymnastics and athletics. Mackenzie⁹ states that in the case of a child with a damaged heart, the question of exercise may be safely left entirely to the child. That if the child feels well, he will run; that as soon as

his heart is all taxed, it will give him discomfort, and he will stop to rest. Probably this may be true as regards British or Scotch children, but I guarantee that it does not hold good in the case of American youngsters. The boys that I know play games, play until they drop, and while the game continues, will stop for nothing. Moderate restriction of strain upon the heart is desirable, but like any other muscle, the heart must have some exercise to improve its nutrition. Where there is an enlarged heart without murmur, I feel that there has been previous myocardial damage, now compensated; and if there is a good effort test, the boy is allowed to take part in the lighter school sports, such as baseball, track and field sports, without long runs and gymnasium work. The same holds true for cases of compensated mitral regurgitation with a good effort test. While it is generally stated that the short dashes put more strain on the heart than longer races, I do not think that this is true in primary school matches. Children show a poor response to exercise, whether evidenced by tachycardia, by marked dyspnoea, by the appearance of murmurs previously not heard, or by arrhythmia, should be barred from competition and from heavy gymnastics. Certainly, the estimation of the fitness of a doubtful heart cannot be determined during one examination, in any case.

CONCLUSIONS.

1. Proof of myocardial insufficiency is often to be found in supposedly healthy children. This may be evidenced in any one of the following ways:

- a. In the production of a relative mitral regurgitation as the result of exercise;
- b. In the movement of the apex beat outward or downward as the result of moderate exertion;
- c. In the appearance of a gallop rhythm after exercise.

2. Myocardial insufficiency of sudden onset is usually the result of an acute infection. Among infections affecting the heart, measles would seem to have an important place.

3. After an acute illness, a child should not be discharged by his physician until an "effort test" produces no evidence of myocardial decompensation. In public schools, the school physician should make this test on each child returning from quarantine to the school.

4. For the determination of the fundamental condition of the heart, more than one examination is necessary.

5. The routine cardiac examination of school children should be focussed more than it now is, upon the condition of the myocardium. Some form of effort test can be used even with the smallest children, and should be used as a routine.

6. Proof of permanent myocardial damage may be furnished in a child:

- a. By poor response to exercise on repeated examinations; this is to be interpreted in relation to the production of a murmur, of arrhythmia, of marked dyspnoea, of gallop rhythm, rather than in regard to pulse rate;
- b. By the presence of an enlarged heart, without murmurs;
- c. By the presence of persistent tachycardia, for which not other cause, such as tuberculosis or hyperthyroidism, can be found;
- d. By the persistence of a "functional" heart murmur for several years.

7. In a child over 10 years old, an apex beat more than 7 cm. from mid sternum, indicates enlargement of the heart. In smaller children, the normal apex beat should not be more than from 5.5 cm. to 6.5 cm. from the median line.

Digitalis should be used only in those children who show signs of decompensation when the heart is under normal strain.

9. In public school children, the care of a damaged myocardium is best controlled through the supervision and the limitation of athletic work by the school physician and by the teachers.

10. Children with compensated mitral regurgitation and giving a good response to effort, also children with compensated myocardial defects and a good effort response, should be permitted to take part in gymnastics and the less tiring sports.

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THE HIGH-GRADE NEURASTHENIC.

By HERBERT J. HALL, M.D., MARBLEHEAD, MASS.

THE average man is not as well as he would like to be and perhaps it may be said, as he ought to be. Health is, in fact, a hard matter to define. Counting out at once the surgical cases, the gross organic diseases and the true psychosis, every doctor has to deal with a large so-called neurasthenic group made up of men and women who cannot successfully meet the demands of life and who complain of a great variety of symptoms. These are the patients who go from one physician to another, who are sometimes cured by Christian Science or Chiropractic, by a tonic or a few weeks at a sanatorium and unfortunately also, they are the patients who more often do not get well or reach a level of efficiency and comfort which they or we may fairly call health.

It has been evident for a long time now that we may not intelligently use the terms neurasthenia, nervous prostration, nervous exhaustion, or even psychasthenia and neurosis, without a finer classification. There are symptom groups which are easily "neurasthenic," but which spring, as we know, from diverse causes. Dr. Wm. J. Mallory, in a recent issue of the *Journal of the American Medical Association*,* has made a very interesting and valuable classification. He writes of six types commonly called neurasthenic, but divisible into "(1) neurosis or anxiety neurosis; (2) mild, rare or atypical psychosis, e.g., manic depression, psychosis and dementia praecox; (3) incipient tuberculosis; (4) low grade cryptic infection; (5) early exophthalmic goitre; (6) cerebral arteriosclerosis." "Neurasthenia," he says, "should be considered as an abnormal, imperfect, inadequate type of reaction, expression or auto-erotic fixation; an infantile type of reaction in which the individual takes an undue interest in his own body, of which he is acutely and abnormally conscious. On these sensations he often erects a more or less organized system of false ideas (auto-erotic inversion)."

This is surely a long step beyond the blanket expressions which have so long served to cover our ignorance of "functional" medicine. But I believe that the general practitioner into whose hands most of these cases fall will have a good

deal of difficulty in fitting all of his "neurasthenic" patients into these classes. First of all, he sees many patients who are neither infantile in their outlook nor are they manic depressive or praecox, they cannot be said to suffer from any sort of psychosis, mild, atypical, or rare. Under the most careful examination by the most reliable methods, they show no evidence of cryptic infection, of tuberculosis or of exophthalmic goitre, they are relatively normal physically and mentally, and yet they are tired, inefficient, nervous, irritable, sleepless; they have rapid hearts and low or high blood pressures, they have dyspepsia, they are depressed, worried, apprehensive, but they obstinately refuse to fall into any of the above categories.

Medical men of experience will give rather widely differing explanations, but are we not somewhere near the mark when we agree that the best human machine will not stand unlimited abuse without signs of breaking? A careful inquiry into the lives of these "relatively normal" people will very often reveal a surprising disregard of mental and physical hygiene. There are men and women who can live fairly comfortable lives without such regard, and there are others who have very limited resistance, whose nervous and physical mechanism is so delicately balanced that the utmost care is necessary to maintain comfort and effectiveness in life.

Whether the nervous invalid falls into the classification of Dr. Mallory or belongs to some other group so far unclassified, it should be the physician's duty to study his case from two points of view, the point of view of conduct, and that of physical and mental limitation.

Broadly speaking, we are all in need of conduct regulation. It would be hard to find a person wholly normal within his limitations, and such a person once found would probably be a disagreeable individual, abnormal by virtue of his extreme normality. We all have our foibles, our excesses, we all overwork or underwork, our very personalities and individualities imply some degree of unbalance. It is only when our activities are seriously beyond our capacity for rapid recuperation or when our nervous and physical resistance is unduly low that we must be brought to book, that we must reeducate and reform our lives. Then it will be evident that we should take more rest, or more exercise, that we must be content with

*The Neurasthenic Patient and the Internist, By William J. Mallory, Jour. A. M. A., March 19 1921.

what may seem like serious restrictions. On the mental side, if we are great worriers, we must in some way acquire a philosophy which will make worry incongruous or impossible. If we have been eating too much we must eat less—if we have been working at high tension we must change our habits, modify our work, or give it up altogether. If there has been over-emphasis of sex it must be subordinated to something better or different, and so on through the list. Diagnosis and treatment go hand in hand, we cannot make one without suggesting the other.

But suppose we have recognized the need of of habit modification, suppose we have made all the changes that we can make, and without relief of the disabling symptoms. And suppose, too, that physical examination fails to reveal any organic disease. Suppose the machine still works badly. We must be untiring in our search for hidden ills, such as cryptic infections, such as latent tuberculosis, we must more or less empirically apply the simple rules of mental and physical hygiene in the hope that by improving the general health, we shall relieve the symptoms and put the patient back into effective life again.

And here we might have to stop were it not for some most interesting and suggestive appreciations which have come strangely enough not from the neurologists or the alienists, not even from the internists, but from the orthopedists. It happens that a good many sufferers from flat-foot, sacroiliac strain and backache belong also to the relatively normal or what might be called the high grade neurasthenic class. They have nervous dyspepsia, chronic fatigue, irritability, glandular disturbances and all the rest. The orthopedists discovered that they could not bring about permanent relief for back and foot strain without rebalancing and rebuilding the entire body. Now rebalancing the body in relaxed, slumped, flat-chested individuals, which most of these patients are, has involved taking up the abdominal slack by appropriate exercises and supports, lifting up the chest, and putting the disused diaphragm into action. It has involved a flattening and strengthening the weak and lordosed spine;—in short, a general physical setting up.

Very interesting results have been found to follow such treatment. Not only have the orthopedic difficulties been relieved and cured,

but functional disturbances, even those of very long standing, have frequently been disposed of. Fatigue has disappeared, and the patient, if he was not organically diseased, has often been "made over" to a most surprising extent.

The next step tried out the same setting up process on chronic nervous invalids who showed none of the unusual orthopedic disabilities but who did possess the general relaxation, the abdominal ptosis, the poor carriage so commonly observed among the neurasthenic. Here the result was no less striking and encouraging. In spite of many discouragements and failures, it was evident that perseverance along these lines might be depended upon to bring about functional improvements most gratifying to patient and doctor. And why not? Really, it is too simple. Backstrain, with or without pain, is comparable to eye strain in its accompanying fatigue. When one thinks of it, how can the abdominal viscera function at their best if they are crumpled up in the pelvis and literally sat upon by the weight of a thorax which telescopes downward? Can we fairly expect good service from a solar plexus whose blood supply is diminished by the mechanical pressure of an inactive diaphragm? Can we expect vigorous, healthy circulation anywhere when the flattened chest expands fully only by an effort which is rarely forthcoming? It is plain enough that the "relatively normal" neurasthenic needs exercise for one thing.

But we have to thank the orthopedists for yet more enlightenment. Every experienced physician knows that in cases of chronic fatigue, adequate exercise is rarely possible. There is not enough vital energy left for such a course, and the attempt results only in more fatigue and discouragement. In their process of restoring bodily balance, the orthopedists have realized that it is not muscular development which is needed first, but rest and the over correction of the faulty spinal curves by appropriate postures carried out in bed, with all other physical and nervous demands eliminated. It is possible by a combination of special exercises and over-correcting postures to lift the chest, spread the ribs, and pull up the ptosed abdominal viscera without prohibitive physical effort. So the beginning is made. The lean retro-peritoneal spaces are padded up with fat by virtue of forced feeding, the long,

stretched stomach begins to empty itself on time, the festoons of the colon are straightened out and the whole clinical picture begins to change.

Here is rest cure with some important modifications. Weeks of this treatment, with massage and careful feeding, may be required before results begin to appear. As a matter of fact, and as might be expected, the digestive symptoms are often made temporarily worse, we may have extreme anorexia, nausea, and a troublesome distention. But persistence meets with due reward. The logical course includes short walks and frequent rest periods, and in the well ordered sanatorium, where alone such treatment may be adequately and safely carried out, the treatment includes occupational therapy, which helps to dispose of introspection and worry, which teaches the impulsive to proceed slowly and the distracted to concentrate attention.

One of the hardest experiences of the relatively normal neurasthenic is the implication that there is nothing the matter with him, that it is "nerves" and he ought to be ashamed of himself. It will be a relief to some of these sufferers to know that sometimes at least there is a physical basis for their many symptoms and that a careful restraining and an adequate setting up may actually cure the "gurgling stomach," which after all, had reason to gurgle, because it could not do much of anything else.

It is not fair to leave the subject without emphasizing the fact that this kind of treatment cannot, as a rule, be carried out offhand, and by a few casual directions to the hopeful patient. It is an expert job requiring much patience and experience. If the internists or the neurologists are to attempt such treatment, they should, at the present stage of our knowledge, learn the details from the orthopedists. The job is often mechanically difficult and manifestly the course must be modified to the peculiarities of the patient; but it is astonishing what changes, what improvements in configuration and poise and what corresponding improvements in function may be accomplished by a carefully conducted physio-therapeutic campaign. The orthopedist himself may readily enough fail unless he understands temperament, unless he is able to deal with the patient as a human being and not as a machine,

and here he may well need the coöperation of the neurologist and the general practitioner.

Whatever measures may be used in the treatment of the high grade neurasthenic, if so he may be called, it seems logical enough that we should look for faulty body mechanics and employ some such restorative measures as have been suggested. We may not effect a cure, it may often enough be quite impossible to overcome entirely the bad habits of mind and body which have been operating for years. We may be dealing with psychoses that will not yield, or with constitutional disease that cannot be reached, but we shall be improving the general vigor, without doubt, and in many a weak and flabby physique we may be removing some of the occult causes of chronic fatigue. To employ such measures as a routine would be hardly logical, but it will be distinctly worth while for those of us who see these functional cases to ask for orthopedic advice and to give the patient the benefit of some such setting up as has been described. There is so little that we can do medically that it is well to know that in the lean and viscerotropic types, at least, there is hope of general improvement by mechanical readjustment of the body.

Let us pass from the high grade neurasthenic to the great range of human beings who are below par, whose confining work, often involving cramped sitting postures, almost inevitably means a lowered vitality. Might it not be possible to do some good missionary work among these men and women, by giving them certain exercises to improve the breathing capacity, and some physical instructions that will relieve the inevitable drain upon their vitality. Perhaps we might prevent here and there the onset of functional or even organic disability and nervous exhaustion.

A most striking demonstration of the importance of posture as bearing upon endurance came to light in our field army in France. Hundreds of men from the front lines, and after long marches, were sent back to the base hospitals utterly fagged and unfit. No disease, no injury was found, but after a while the general hospital men began to realize that these were functional disability cases and they were turned over to the orthopedic reconstruction system. The disabled men were clerks and men from all sedentary occupations; many of them had flat feet, hollow back, flat chests, lax

and protruding abdomens. After a few weeks of special training along the lines of better body mechanics, great numbers of these men were sent back to the front, able and efficient, ready to bear the brunt of hard service. Who knows how many of the men who broke nervously under the war strain were of this type also?

Not always is it necessary to wait in civil life until serious symptoms develop and we have to deal with the notoriously difficult chronic nervous invalid.

The orthopedists have accomplished a great service to medicine in calling attention to the effect of body mechanics upon the metabolic processes and so to a relationship with the general health of body and mind.

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS.*

BY CHARLES A. SPARROW, M.D., WORCESTER, MASS.

[From the Children's Service of the Memorial Hospital, Worcester, Mass.]

THERE has been a great deal of discussion as to the proper classification of pyloric stenosis in infants. The usual division into the hypertrophic and spasmodic types is unsatisfactory, especially from a pathological point of view. Clinically there are cases which would justify the spasmodic type because the symptoms appear abruptly and disappear in two or three weeks. However, at autopsy the record generally reads, a hard, firm tumor about the size of an olive was present. At the Babies' Hospital in New York, such a condition was found in every one of twenty-six autopsies. The evidence at hand indicates that there is no definite persistent spasm of the pylorus without hypertrophy. The presence or absence of a palpable tumor is not a satisfactory basis for classification because many men claim that a careful, experienced examiner can find a tumor in every case.

Therefore it will be found more accurate to limit the classification to mild or severe cases of congenital hypertrophic pyloric stenosis. This classification will be especially useful in determining the proper treatment.

ETIOLOGY

The etiology of this condition is unknown. There are at present two theories which at-

tempt to explain it. "From the embryological point of view we know that the pylorus is not a place of developmental fusion, such as the lower end of the esophagus; but that a temporary obturation of the lumen of the duodenum takes place in the embryo at an early stage. There is an overgrowth of mucous membrane caudal to the ducts of the liver and pancreas, causing this obturation, which is relieved in embryos of a slightly later stage." Even if this intestinal block should continue beyond its normal time it would require a vivid imagination to attribute a great hard pyloric mass of muscular tissue, perhaps the size of an olive, to excessive muscular activity for a period of 3-4 weeks. The best theory, as advanced by Downes, to explain this condition is that "there is a true malformation present at birth consisting of an abnormal thickening of the circular muscles of the pylorus, and that the effort necessary to force food through the narrowed and elongated pyloric lumen, produces circulatory disturbances resulting in edema. As the food is increased in amount, and the muscular effort becomes greater the lumen narrows down until finally at the tenth day or later it becomes more or less completely obliterated." The evidence in support of the congenital character of this condition is greatly substantiated by well marked tumors of hypertrophied stenosis, being found in the new born and infants born prematurely.

The fact that this congenital abnormality occurs more often in males than females, the proportion being 4 or 5 to 1, is not explainable. It more often occurs in the breast fed for its onset is generally in the first month of life when most infants are on the breast. However, artificial foods are generally resorted to in the course of the disease.

PATHOLOGICAL ANATOMY.

Dunn says: "This disease has definite pathological anatomy, on which alone its certain diagnosis can rest. The hypertrophy is chiefly in the circular layer of muscular fibres at the pylorus, which layer is usually two or three times its normal thickness. This thickening is due to an increased number of fibres rather than to the presence of fibres of increased size. The layer of longitudinal fibre is usually of normal thickness. The mucosa is somewhat thickened, particularly in its longitudinal folds and the sub mucosa may be slightly thickened.

* Read before the Worcester District Medical Society, March 10, 1920.

Macroscopically, in marked cases, the lesion appears as a hard whitish tumor at the pylorus, resembling an olive in shape and size. In milder cases there may be thickening about the pylorus, without a definite tumor.

"There is a great variation in the effect of the hypertrophy on the lumen of the pylorus, in some cases the pyloric orifice is completely occluded at birth, no gastric contents being permitted to pass into the duodenum. In other cases, representing the most common type, complete occlusion is not present at birth but developed in the course of a few weeks."

"Autopsies on infants previously operated on for pyloric stenosis (with post gastro enterostomies) have shown no tendency towards diminution of the hypertrophy."

"There is usually some hypertrophy of the muscle of the walls of the stomach especially in the region of the pylorus. There is almost always some dilatation of the stomach, which may become very marked especially in case of incomplete occlusion, in which there is a long duration of the obstruction. There is sometimes some dilatation of the oesophagus. There are no inflammatory lesions."

SYMPTOMS.

The three cardinal symptoms of this disease are vomiting, constipation and loss of weight. The last two symptoms need only be mentioned as they are certain to follow a pyloric stenosis. The loss of weight at times is very rapid and often becomes the deciding factor to be considered in the treatment.

The vomiting begins during the second to fifth week, rarely before the tenth day, or later than the sixth week. Right here we can appreciate the value of a good history for by careful questioning the exact date of the beginning of this symptom can be set. The vomiting occurs with such regularity at this time, that some authors speak of it as the "age incidence" of this disease. The vomiting is generally very characteristic, not regurgitant, but forcible, projectile and generally large in amount. It occurs most often directly after or during a feeding, and in the later stages, with each feeding. One or two feedings may be retained only to be vomited in one large quantity. Longer intervals of feeding or some change in the character of the food may give temporary abatement of the vomiting, giving rise generally to false impressions of improvement.

PHYSICAL EXAMINATION.

A careful physical examination in these cases give three cardinal points which help to clinch the diagnosis. They are; (1) visible peristalsis, (2) palpable tumor, and (3) delayed emptying time of the stomach. Normally during the digestion of food, invisible peristaltic waves pass over the child's stomach every twenty seconds. Although these waves may be invisible during the first few days of pyloric stenosis, they soon become so prominent that they are often recognized by the mother. One must take plenty of time, have a good light and a well exposed abdomen in order to get the best result in this examination. The best time for inspection is directly after feeding and often the peristalsis can be brought out by stroking the epigastrium or by the application of cold water or a piece of ice. When visible it is very easy to recognize and looks like a succession of miniature balloons travelling across the abdomen from under the left border of the ribs towards the right side disappearing at the region of the pylorus. Vigorous, incisive waves of peristalsis followed by vomiting are pathognomonic of hypertrophic stenosis and also serve to differentiate it from pyloric spasm in which the waves are poorly marked and feeble. A tumor can be palpated in most cases and the more experience one has the more often is the tumor found. It is generally located a little to the right of the median line about half way between the tip of the ensiform cartilage and the umbilicus. The tumor is freely moveable, varying in size from a peanut to a small olive, best felt directly after feeding at the time of active peristalsis or during vomiting. Inability to palpate a tumor is not evidence against this disease as operative procedure shows the great frequency with which it is present. Palpation of such a tumor is very substantial evidence in favor of stenosis. In pyloric stenosis the tumor never varies in size. Two methods may be used to determine the emptying time of the stomach,—X-ray pictures and aspiration of the stomach contents. The first method gives us very positive evidence in those cases of total occlusion when none of the Barium or Bismuth has left the stomach as shown in a series of pictures taken every two hours directly after feeding. If the four hour plates show no food in the intestine we are justified in considering

that there is complete obstruction. However, in partial obstruction, while X-ray evidence is of considerable value in showing a delay in emptying time, we must remember that sometimes the Bismuth or Barium causes a slightly delayed emptying time in infants' stomachs with no abnormality at the pylorus.

The second method consists in aspiration of the stomach contents two or four hours after a feeding. Breast milk or malted or condensed milk may be used, to do away with the curds formed with cow's milk. After two hours of digestion there should be very little residue in the infant's stomach and after four hours none. This procedure requires a careful technique and gives definite evidence of obstruction but does not differentiate between partial and complete obstruction.

DIAGNOSIS.

In marked cases of pyloric stenosis with all the clinical symptoms and signs the diagnosis is very easy. Outside of some external pressure causing obstruction or some growth in the lumen of the pylorus we have mainly to consider spasm of the pylorus, indigestion and habitual vomiting in the differential diagnosis. Both indigestion and habitual vomiting lack the clinical symptom-complex of pyloric stenosis although the single symptom of vomiting often makes us consider the possibility of this disease. The differentiation between spasm and stenosis of the pyloric is not so easy. Here again we have to consider the pathological anatomy classifying any case with abnormal thickening of the circular muscular fibres as hypertrophic stenosis whether we have a palpable tumor, partial or complete obstruction. As cases of this sort are often complicated with spasm it is very difficult to differentiate from pure spasm with no abnormal condition at the pylorus. In marked persistent constipation developing in a breast fed baby the presence of a palpable tumor serves to make the diagnosis of stenosis clear. Recently Howell and Dunn have done much to clear up this point by using the duodenal catheter. They claim that "in spasm of the pylorus there may be some delay in the passage of the tube but the baby will always take a catheter of normal size, while in hypertrophic stenosis either the catheter cannot be passed at all or a smaller sized one than

normal for the baby may be passed with diminished or feeble pyloric reflex."

I might say in passing that very often one passage of the duodenal catheter cures the simple case of spasm.

PROGNOSIS.

The prognosis depends entirely upon whether there is partial or complete occlusion. This brings us to the treatment which is also based upon this point.

TREATMENT.

It seems to me that we are undergoing in this disease the same transitional stage of expectant treatment which we have been through in appendicitis and gall stones. There is no question but there are mild cases with very little occlusion that respond to the medical treatment of very careful feeding, nursing, stomach washing, and such long drawn out procedures. Recently Porter and Mixsell have reported great success with the use of thickened cereal feeding in these cases. However, with our now more exact methods of diagnosis and still newer operative procedure it seems to me that we ought to seek surgical interference much more often than before. There is absolutely no question about the cases of complete occlusion. Without prompt surgical treatment these cases were hopeless. In view of the satisfactory end results of our improved surgical treatment, I wish to make an appeal for its more frequent use in the border line cases. We should do away with the prolonged and often unsuccessful medical treatment.

The operation of choice now is the Ramsted operation, which makes unnecessary the long, exhausting, difficult posterior gastro-enterostomy. This operation is very simple and can be done in fifteen to twenty minutes by any capable surgeon and gives the least amount of shock that any abdominal operation should. The posterior gastro-enterostomy is a long tedious operation not only requiring a very capable surgeon but one especially trained in operating on children. The length of time taken, and the amount of handling of the stomach and intestines necessary, generally produce a very high rate of shock in these infants, some of whom are in very poor condition.

The Ramsted operation consists in splitting the muscles of the pyloric ring down to but not through the mucous layers, allowing the mucosa

to bulge through forming a hernia of the mucosa. Ranchoff and Wolley report on the autopsy findings in a case which died six months after the Ramsted operation as follows: "It appears that the surgical incision permitted the muscular coats of the tissue to retract and the opening to gape and that subsequently the space was filled with organized tissue, which in its fully developed state was fibrous tissue. It seems that during the healing of the wound the pyloric orifice became dilated and then remained so, thereafter performing its function in an acceptable manner. This is anatomic proof of the perfect office of the operation." Downes of New York and Stone of Boston have been most successful in the use of this Ramsted operation.

Autopsy evidence shows that following posterior gastro-enterostomy, hypertrophy of the pylorus exists for a long time, cases being reported six months after operation with hypertrophy still present. Also we have many cases treated medically in which the period of invalidism last well through the first year of life. Now with a simple operation which gives excellent end results, provided the proper technique is followed and due care given to the fine but very important details of after care, it seems to me that we ought to be able to greatly aid many of the so-called medical cases of this disease by prompt and early operation.

I have been over the surgical records of the Memorial Hospital with a view to finding the number of cases treated in the past ten years for congenital pyloric stenosis. I have found six cases. Two cases were operated upon with posterior gastro-enterostomy and one with a form of pyloroplasty, all of these died. In the past year we have had three cases, which gave all the classical symptoms of pyloric stenosis. These were operated upon at the hospital by the Ramsted method. Two of these are now perfectly well, while the third died of an acute gastro-enteritis four months after the operation. I realize that these statistics are very meagre but statistics gathered from other papers show distinct reduction of the mortality rate so that by some, it is given as low as 15%. Therefore I wish again to emphasize the point that surgical interference should be advised in all cases that do not show definite signs of improvement after a two weeks careful medical treatment especially when definite occlusion of the pylorus is shown by the x-ray or by the

palpable tumor, or by the more technical method of duodenal catheterization.

I wish to express my thanks to Dr. Miller, chief of the medical staff, for his many kind suggestions and very helpful interest in this paper.

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THE DIAGNOSIS OF PARALYTIC OR EARLY POLIOMYELITIS.

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As one of the diagnosticians of the Harvard Infantile Paralysis Commission working for the Department of Health of the City of Boston, an unusual opportunity was offered during the last epidemic in 1920 to see a large number of cases of acute poliomyelitis in all stages of the disease. Although the prime function of the diagnostician was to see doubtful cases and those that are particularly puzzling, patients in all stages of the disease and with all degrees of severity were observed. It is the purpose of this short paper to emphasize a few points that have been of distinct practical aid in early diagnosis, inasmuch as the incidence of the disease at the present time is on the increase. It is not intended to discuss in any elaborate or systematic way the symptomatology of the disease, but to pick out a few of the positive findings which should be always looked for and which would enable the practitioner to suspect early poliomyelitis.

When a definite paralysis has developed, there is no difficulty in making a diagnosis. But, as frequently happens, patients are sick for several days with vague symptoms, often considered a mere cold or a gripe, or some gastrointestinal upset, and then suddenly present the paralysis which discloses the seriousness of the malady. It is during these early days that the family is much concerned, the physician baffled, and, as so often happens, the attending physician is reproached for allowing the child to "develop paralysis" or for "treating the patient for the wrong disease, etc. During this preparalytic stage there are definite signs and symptoms which are a great aid in diagnosis. In fact, during an epidemic, it

should not be difficult to make a presumptive diagnosis of prepolymyelitis with a fair degree of accuracy in many of the cases.

There are many points in the history of a case of polymyelitis, but most of them might well occur in any case of acute illness. However, the frequency of a few of these deserves their mention. It should always be borne in mind that with acute polymyelitis there generally is a fever. This is particularly true in the prepolymyelitic stage. Often the temperature is normal if the patient is first seen only after paralysis has developed. But if there is an appreciable preliminary or prepolymyelitic stage of illness, fever is practically always present. The history of headaches and vomiting has often been spoken of as common complaints. What is more important is a story of pains, most frequently in the back of the neck or along the spinal column, in the limbs or in the abdomen. The pains seem to be troublesome, even when the limbs or body are at rest, but especially when the patient is moved or lifted.

When we come to the examination of the patient, the findings are more important, more constant, and more helpful. It has been our experience that stiffness of the neck and resistance to flexion have been present in practically all early cases, and in most of them a definitely positive Kernig sign as well. The latter phenomenon in general is less reliable, is more often doubtful of interpretation and not as frequently present in proved cases of polymyelitis as the neck sign.

One can see, therefore, that during an epidemic of polymyelitis, every child with a fever and vague symptoms should be investigated for signs of meningeal irritation. If the case is one of polymyelitis, the great probability is that there will be found rigidity of the neck or a positive Kernig's sign, or both. The reflexes during this stage of the process may be of no assistance in diagnosis, and more indefinite findings, like the aspect of the child, the pupillary reactions, etc., are too vague to be of any help.

If there is fever, with a stiff neck or a positive Kernig sign, the possibility of polymyelitis must be seriously considered. There is nothing further that can be done to prove or disprove the diagnosis, except a lumbar puncture, which is absolutely indicated in any doubtful case presenting the above findings. There is sufficient evidence that the procedure is harmless, except for the momentary discomfort to the patient. There is no evidence that it does much good, although it would seem that the occasional case in which the spinal fluid pressure is markedly increased might derive some benefit by a release of the pressure. If the spinal fluid cell count is normal, one can be practically certain that the case is not polymyelitis. No case of polymyelitis has been

seen by members of the Harvard Infantile Paralysis Commission, either during the epidemic of 1916 or during the present epidemic, with a normal cell count in the spinal fluid. If the fluid is clear, with an increase in the number of cells, the diagnosis is most likely polymyelitis. The only confusing possibilities are tubercular meningitis, mumps, syphilis of the central nervous system, and encephalitis lethargica. A clinical consideration of the case generally is sufficient to appraise the likelihood of these latter conditions.

CONCLUSIONS.

During an epidemic of polymyelitis, it is possible to diagnose the disease in the early stages before paralysis has developed, with a fair degree of accuracy. Every patient with unexplained fever should be examined for stiffness of the neck and the presence of the Kernig sign. If either one, or both, of these signs are present, a lumbar puncture should be done. This procedure is harmless and will save unnecessary anxiety both on the part of the patient's family and of the physician. A normal cell count practically rules out polymyelitis. An increase in the cell count of the spinal fluid, with the other clinical features, will enable the clinician to make the correct diagnosis of polymyelitis. In this way, the proper treatment and care of the patient will be instituted before paralysis has occurred.

Book Review.

A Text-Book of Histology. By FREDERICK R. BAILEY, A.M., M.D. Sixth Revised Edition. Profusely Illustrated. New York: William Wood and Company. 1920.

Previous editions of this work for students and teachers have been favorably reviewed in the JOURNAL. In this sixth edition the text has been thoroughly revised, some parts of it rewritten, and some new figures added. The chapter of the nervous system has been extensively rewritten by Dr. Oliver S. Strong, and considerably enlarged, not only by the addition of more detail, but also by allusions to the comparative anatomic, clinical, physiologic and psychologic significance of certain nervous structures. The illustrations are many and excellent.

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THE SPIROCHETICIDAL VALUE OF DISODIUM ETHYL ARSENATE (MON-ARSON).

NICHOLS, H. J. (*Jour. A. M. A.*, May 25, 1921) finds that this drug, tested on rabbits infected with syphilis, shows no spirocheticidal power. The tissues were fatally poisoned as soon as or before the spirochetes were affected.

For its practical use in syphilis there is no such germicidal basis as exists in case of the arsphenamine group. [E. H. R.]

THE TOXIC AGENTS DEVELOPED IN THE COURSE OF ACUTE INTESTINAL OBSTRUCTION, AND THEIR ACTION.

STONE, HARVEY B., (*Surg., Gyn. and Obstet.*, May, 1921).

Dr. Stone states that the following facts concerning acute intestinal obstruction may be stated as generally believed:

1. The cause of death in acute obstruction is a form of chemical intoxication.
2. The toxic chemicals are developed in the process of protein disintegration.
3. The effect of these toxic chemicals is to cause a fall in blood-pressure, temperature disturbances, vomiting, diarrhoea, disturbance of kidney excretion, high non-protein blood nitrogen, delayed coagulation-time of the blood, profound congestion of the duodenal and jejunal mucosa, collapse, death.

That the following points are in dispute:

1. The precise chemical nature of the chief toxic factors.
2. The precise cause, bacterial or other, of the protein disintegration that results in toxin production.
3. The precise mechanism of absorption.

That the clinical surgeon may derive from all of this experimental investigation the following practical suggestions:

1. A confirmation and scientific reason for the previously generally held necessity of prompt relief of obstruction, and evacuation of the contents of obstructed bowel.
2. The use of the non-protein nitrogen content of the blood as a pre-operative guide to the degree of intoxication and a post-operative guide to prognosis.
3. The post-operative use of all measures that combat severe chemical poisoning, i. e. the induction of fluid into the system, the use of heat, the washing out of stomach and lower bowel and enterostomy opening, if there be one.

[E. H. R.]

THE MANAGEMENT OF PLEURAL EFFUSIONS IN THE COURSE OF THERAPEUTIC PNEUMOTHORAX.

STUDMAN, B. P., and ROSENBLATT, J. (*Jour. A. M. A.*, July 2, 1921) state that:

1. The immediate effects of serous effusions occurring during pneumothorax treatment are usually

beneficial, but ultimately they cause premature re-expansion of the lung and obliteration of the pleural cavity. It is therefore unwise to discontinue the treatment and adhere to the dictum if "leave effusions alone."

2. Small, transitory effusions which do not alter the intrapleural pressure require no special attention.

3. Moderate effusions which do not displace the mediastinum and do not interfere with the continuation of the pneumothorax need not be aspirated, but the pneumothorax should be continued with increasing intrapleural pressure to prevent obliteration of the pleural cavity.

4. Large effusions should always be aspirated and replaced by air and the pressure regulated according to the needs of the individual case.

5. Purulent effusions should always be aspirated and replaced by air, not only because of their toxicity, but also on account of their tendency to produce extensive adhesion formation and obliteration of the pleura. [E. H. R.]

STUDIES IN FAMILIAL NEUROSYPHILIS: I. CONJUGAL NEUROSYPHILIS.

MOON, J. L., and KNIBEL, A. (*Jour. A. M. A.*, July 2, 1921) draw the following summary of this interesting investigation.

1. Routine examination was made of the fifty-two marital partners of fifty neurosyphilitic patients.
2. Of the twenty-two partners of twenty-one paretics, sixteen, or 72.7% had syphilis. Of these syphilitics, eleven, or 68.7% were neurosyphilitic.

3. Six of the eight partners of tabetics had syphilis, and four of these had neurosyphilis.

4. In the group of meningovascular neurosyphilitics, eighteen, or 51.8% of twenty-two partners, had syphilis; but of these, only six (33.3%) were neurosyphilitic.

5. Of the whole number of fifty-two partners, forty, or 76.7%, were syphilitic, and of these, twenty-one, or 52% per cent, had neurosyphilis.

6. Conjugal neurosyphilis was observed in twenty-one instances. The type was similar in both partners eight times. In seven instances, neurosyphilis was asymptomatic in the marital partner, and was detected only by routine examination of the cerebrospinal fluid.

7. The duration of marriage, and of syphilis in the syphilitic, was about twice as long in the group of parenchymatous (paretic and tabes) neurosyphilis families as in the group of meningovascular syphilis. The danger of infection for the partner increases as the date of infection in the syphilitic approaches the date of marriage.

8. In two thirds of the syphilitic partners of parenchymatous neurosyphilitics, the course of syphilis had been latent. Only one third of the partners of meningovascular neurosyphilitics showed this latency.

9. The higher percentages of conjugal neurosyphilis which we have obtained, as compared with those of other investigators, are due to the routine use of fluid examinations.

10. Though the high incidence of conjugal neurosyphilis in the partners of parenchymatous neurosyphilitics points to the existence of a special neurotropic strain of *Spirochaeta pallida*, the comparatively low percentage found in the partners of cerebrospinal neurosyphilitics introduces a complicating factor. From the available material, a definite decision as to duality of strain cannot be reached.

11. Routine examination of the partners of neurosyphilitics is of practical value. The spinal fluid examination is an indispensable part of the routine is indicated by the discovery of asymptomatic neurosyphilis in seven partners. [E. H. R.]

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THE DIPHTHERIA PROBLEM.

WITH the demonstration of the efficacy of the antitoxin treatment of diphtheria a generation ago, there came a great feeling of confidence that one great scourge would be controlled in a large measure. The majority of the profession accepted and used this potent remedy with increasing confidence, but many lives were sacrificed even after full information of the value and technic of administration were made public, because of opposition of a minority of physicians and a considerable number of that part of the laity which has been ready to antagonize and try to discredit medical practice.

As time has gone on, the diphtheria problem has presented serious phases, even though a weapon has been added to the resources of physicians, for the prevention of the disease has not been brought about, and today boards of health and practitioners are very much concerned over the frequent outbreaks. Even in summer, when children are not closely segregated and are living more generally in the open, reports are coming in of epidemics in various localities. Practically all of the larger cities are reporting a considerable number of cases; for example, Worcester reports more in June than in May, and the Health Department of New York has published a special article dealing with

this subject, and the daily papers report a camp for children has had to be abandoned on account of the disease.

While the mortality rate is low under antitoxin administration, more deaths are reported than would seem reasonable. Authorities feel that practitioners, sometimes, fail to diagnose the disease early, and the advantageous time for treatment has passed in most fatal cases. This failure to recognize and treat the disease early is very much like the appendicitis problem, for here, too, most fatal cases follow a delayed diagnosis and reference to a surgeon.

One step in advance in dealing with diphtheria is the employment of the Schick test, which demonstrates quite uniformly the susceptible cases, and it now remains for the profession to unitedly advocate this method of determining the susceptible human soil. The Public Health Committee of the Massachusetts Medical Society and some municipal boards of health are advocating the Schick test. New York City is employing it to some extent. All who are familiar with it, are enthusiastic advocates of this method of studying the problem.

The next step is to make the public familiar with this added resource, and induce officials to make general use of it. This is the function of every intelligent physician who is interested in progress. This winter should find publicity agencies employed in attempts to secure general support of this procedure. Begin with each unit in the social structure by telling parents that they should have their children subjected to the test.

MEDICAL NOTES.

WEEK'S DEATH RATE IN BOSTON.—During the week ending August 13, 1921, the number of deaths reported was 16.8 against 21.8 last year, with a rate of 11.57. There were 31 deaths under one year of age against 48 last year.

The number of cases of principal reportable diseases were: Diphtheria, 36; scarlet fever, 10; measles, 13; whooping cough, 13; typhoid fever, 8; tuberculosis, 39.

Included in the above, were the following cases of non-residents: Diphtheria, 1; scarlet fever, 3; typhoid fever, 3; tuberculosis, 6.

Total deaths from these diseases were: Diphtheria, 2; tuberculosis, 15.

THE CHILDREN'S HOSPITAL needs \$7,721.07 to make up the amount required to cover running expenses for the year. The work may suffer if this is not forthcoming.

THE BOSTON TUBERCULOSIS ASSOCIATION has arranged for a series of lectures at the Massachusetts General Hospital, for physicians, during October of this year. Dr. John B. Hawes, 2nd, is arranging the details. Among the lecturers will be Drs. Edward O. Otis, William C. Woodward, Cleveland Floyd, Randall Clifford.

Announcement will be made later of others. Luncheon will be served on the hospital grounds.

HERMAN L. F. VON HELMHOLTZ, who was thirty years of age when he invented the ophthalmoscope, would, if he had lived, be 100 years old August 31, 1921. He attended the International Electrical Congress, Chicago, in 1893. On his mother's side, he was a descendant of William Penn. His wife once made the following remark: "And yet Helmholtz is pushed off the sidewalk in Berlin almost every day by any little lieutenant in the army who happens to be passing."

DR. W. C. BRAISTED, former Surgeon General of the Navy, has been elected President of the Philadelphia College of Pharmacy.

COMMANDER JAMES J. MANNING, United States Navy, has discovered an alloy which he has had patented under the name of Manning Everedge alloy. The Medical Department of the U. S. S. *Delaware* has been trying out this metallic combination for the past four months and testifies that this alloy is superior to steel in that it costs less to produce, takes an excellent cutting edge, and has a beautiful natural lustre. Neither bichloride of mercury nor iodine has any effect on it, and it does not combine with oxygen at ordinary temperature. The temper is retained under exposure to rather high temperatures, and it can be used in place of platinum loops, silver wire in bone work and sounds as well as knives. A spatula made of the alloy has been in use in preparing ointments which contain ingredients which would destroy other metals, and has not been affected in any way.

DR. LIONEL A. B. STREET has removed to Suite 1023, Pacific Mutual Building, Los Angeles, Calif.

DR. JOSEPH E. INGOLDSBY died August 8, 1921, in Dorchester. He was a native of Boston and a graduate of Mt. St. Mary's College, at Emmetsburg, Md., and the Harvard Medical School in 1898. His health was broken as a result of strenuous work in examining men summoned to service in the late war, serving on the Local Exemption Board, Division 19. He was a member of the Massachusetts Medical Society, the Boston Medical Association, and the Boston Lodge of Elks. His widow, two sons and a sister survive him.

THE RED CROSS AND PUBLIC HEALTH SERVICE are arranging for coöperation work in dealing with the pellagra problem.

THE MEDICAL PROFESSION is dedicated to the fight against disease, unnecessary deaths, and all factors which operate to produce degener-

acy of the race. War not only destroys life, but its malign effect is far reaching in inhibiting measures ordinarily employed in the prevention of disease.

During war, the most virile men are in service and many never return. The culls are sent back to perpetuate the race.

Will Irwin maintains that another war will mean the drafting of the high types of young women. In the late war, women ambulance drivers, munition makers and army clerks were killed in considerable numbers. Another war would mean the killing of many more. The inferior men and women would be fathers and mothers in an abnormal proportion.

France lost by death in the late war, sixty per cent. of her men between the age of 18 and 30. She has the burden of many disabled veterans. Physicians may properly join in anti-war movements.

Germany is about to start a great anti-war demonstration.

SINCE prohibition became the law of the land, there has been an average annual increase of one hundred cups of coffee per person. This means about 21 per cent. more coffee used. If coffee is as deleterious as has been claimed, the effect will be apparent unless a less harmful agent has been substituted for one more potent.

AFTER the passage of the Sheppard-Towner bill by a vote of 63 to 7, eight senators paired or not voting, the bill S. 1039 has been referred to the Interstate and Foreign Commerce Committee.

On July 23rd, the Committee adjourned for three weeks pending the printing of the hearings which were held from July 12 to July 23. Samuel E. Winslow of Massachusetts is chairman of the Committee.

Miss Alice M. Robertson, member of the House from Oklahoma, condemns the Sheppard-Towner bill in the following language:

"Its salient feature is not tangible help of the kind the general public infers would be given, but the establishment of an autocratic, undefined, practically uncontrolled, yet federally authorized, centre of propaganda.

"Were the pitiless lights of real publicity turned on the methods which have brought the maternity bill thus far toward enactment, its most ardent proponents, in my belief, would in all fairness be compelled to allow time for the as yet unheard majority of women who know nothing of the proposed legislation to learn the facts and to speak for themselves."

DR. JAMES WILLIS JOHNSON MARION of Calais, Me., was drowned in Mascoma Lake, N. H., August 10, 1921. He was born in Allston forty years ago, the son of the late Dr. Otis H. Marion, and nephew of the late Dr. Horace

Marion, who were prominent physicians in Allston. He graduated from Harvard, 1904, and received his M.D. from the Harvard Medical School in 1908. He was on the staff of the Boston City Hospital at one time. He had practiced in Medford, Oregon, and Norfolk, Va. He had lived in Calais for the past five years.

THE SENATE passed a bill August 16, making it possible for the President to appoint Major-General Leonard Wood Governor General of the Philippine Islands.

Chairman Wadsworth of the Military Committee, is reported to have stated that "The situation is such as to constitute a serious condition of affairs—one requiring the best talent and experience that the country can produce." General Wood has agreed to accept the position.

George A. Sagendorph, a member of the Alumni Committee, has sent a telegram to the trustees of the University of Pennsylvania, stating that the alumni of New England are opposed to the release of Major-General Wood as head of that institution.

The conception of the higher duty can safely be left to General Wood, for he is especially qualified to deal with all administrative and health problems.

Later—It is reported that the Trustees of the University of Pennsylvania have released Major-General Wood until September 1, 1922, from his agreement to accept the position of head of the University, as defined in this copy of telegram.

The following cablegram was sent to General Wood by Dr. Charles O. Harrison, Chairman of the Board of Trustees:

"The trustees comply with the request of the Government to release you from obligation to report to the University for service before Sept. 1, 1922. In holding the headship of the institution open for you in the interval, the trustees are acting upon the assumption that you will assume office at that date, unless the President of the United States then declines to accept your resignation as governor general. Please confirm this understanding by cable.

THE BOSTON TUBERCULOSIS ASSOCIATION gave a demonstration last Thursday of the adaptability of the Prendergast Camp as a "preventorium" for children, in Mattapan. Fifty children with incipient tuberculosis were present and were entertained in various ways, in addition to the serving of an appetizing lunch.

Tea was served to visitors through the courtesy of Dr. James J. Minot. This institution is unique in dealing with tuberculosis in children.

MAXWELL WILLIAMSON, recognized cancer expert, claims that cancer is increasing rapidly in all civilized countries. Edinburgh statistics show that in 1898 there were .88 deaths per

1,000 population; in 1920 there were 1.39. He suggests the possibility of late dinners as a cause of cancer of the alimentary tract.

DR. LAWRENCE N. DURGIN, Jefferson Medical School, Philadelphia, 1920, has opened an office in North Amherst.

DR. CHARLES G. BARRETT, formerly of Worcester District, has begun practice in Amherst.

Obituary.

HEAD OF PHILLIPS HOUSE.

MISS PAULINE LONGHURST DOLLIVER, Assistant to the Resident Physician of the Massachusetts General Hospital, and in charge of Phillips House, a private ward of that institution, died at the Hospital on Wednesday, August 10, 1921, after an illness of nearly three months' duration. She was born in Auburndale on January 10, 1862, the daughter of Captain James M. and Mary Longhurst Dolliver, the former a Boston steamship pilot, who had received two gold medals, one from Queen Victoria and the other from the Boston Humane Society, for the rescue of persons from shipwrecks.

Miss Dolliver was educated in the public schools of West Newton and was graduated from the Massachusetts General Hospital Training School for Nurses in the class of 1889, remaining at the Hospital for one year as head nurse of the surgical ward. Early in 1890, Miss Dolliver went to the State of New York, and while there was head nurse of St. Luke's Hospital in New York City, and also at St. Luke's Hospital in Utica, N. Y. She later did private nursing for some three years, one year of which was spent with a patient in European travel.

Upon her return to New York City, Miss Dolliver attended the School of Philanthropy at Columbia University. Returning to institutional work in 1897, she became the assistant to the superintendent of nurses, Miss Anna C. Maxwell, at the Presbyterian Hospital in New York. In 1889, Miss Dolliver resigned from that hospital and accepted the position of Superintendent of the Training School for Nurses of the Massachusetts General Hospital, which position she held until 1909.

In 1910, Miss Dolliver again went to New York City and organized the Central Directory for Nurses, holding the position of Registrar until 1914, at which time she returned to her home in this city. In January, 1917, she was appointed to the position which she held at the time of her death.

Miss Dolliver was a member of the Guild of St. Barnabas for Nurses, at the Cathedral Church of St. Paul; the Nurses' Alumnae Association of the Massachusetts General Hospital, the Massachusetts State Nurses' Association, the American Nurses' Association, and the National League of Nursing Education.

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES. JULY, 1921.

General Prevalence.

Of communicable diseases, 4,025 cases were reported during July, as compared with 6,073 for June. This is the least number reported for any month this year. There were decreases in the reported incidence of all the more important communicable diseases. One disease, anterior poliomyelitis, appeared upon the upward trend.

Anterior Poliomyelitis.—Twenty-six cases of anterior poliomyelitis were reported for July, while the total for June was four cases. Whether this increased incidence foreshadows its reaching epidemic proportions is problematical to state.

Diphtheria.—The total number of cases for July was 441, a substantial decrease from the number reported for June, which was 623. Four hundred and forty-one represents the least number of cases since September, 1920.

Gonorrhea and Syphilis were reported in about the same number as last month,—459 for the former and 171 for the latter.

Measles.—There were 866 cases of measles reported for this month as compared with 1,635 for the previous month. This constitutes a substantial decrease.

Lobar Pneumonia.—Eighty-seven cases were reported for July as against 291 for June, an expected seasonal decrease.

Scarlet Fever.—There were 251 cases reported for July as against 492 for June. This low figure has not been reached since August, 1920.

Pulmonary Tuberculosis.—There were 503 cases reported for July. This is about the usual number.

Typhoid Fever was reported in 62 instances. These were scattered throughout the state.

Whooping Cough showed a slight decrease, with 475 cases as compared with 509 for June.

Rare Diseases.

Anterior Poliomyelitis was reported from Adams, 1; Andover, 1; Belmont, 1; Boston, 6; Danvers, 1; Haverhill, 4; Lawrence, 1; North Adams, 1; Norwood, 2; Quincy, 1; Springfield, 1; and Wakefield, 1. Total, 26.

Dog-bite, requiring antirabic treatment, was

reported from Freetown, 1; Lowell, 2. Total 3. Dysentery was reported from Everett, 1.

Encephalitis Lethargica was reported from Arlington, 1; Boston, 1; Everett, 1; Fall River, 1; Haverhill, 1; Lawrence, 1; Marlboro, 1; Northampton, 1; Springfield, 1; Webster, 1. Total, 10.

Epidemic Cerebrospinal Meningitis was reported from Boston, 5; Gill, 1; Lynn, 1; New Bedford, 1; North Adams, 2; Pittsfield, 1; West Bridgewater, 1; Weymouth, 1; Worcester, 1. Total, 14.

Malaria was reported from Boston, 2; Brockton, 2; Dedham, 1; Fall River, 1; Framingham, 1; Worcester, 1. Total, 8.

Septic Sore Throat was reported from Ayer, 1; Boston, 1; Somerville, 1; Taunton, 1. Total, 4.

Tetanus was reported from Barnstable, 1; Cambridge, 1; Lowell, 1; New Bedford, 1; North Adams, 1; Pittsfield, 2. Total, 7.

Trachoma was reported from Boston, 2; Cambridge, 1; Lancaster, 1; Norwood, 1; Watertown, 1. Total, 6.

Trichinosis was reported from Somerville, 1.

U. S. TRAINING SCHOOL FOR NURSES.

A TRAINING SCHOOL for nurses of the U. S. Public Health Service is to be established by the Surgeon General, which will offer to women desiring to take up the profession of nursing, a course of study leading to a diploma and an opportunity to assist in caring for disabled military patients.

The headquarters of the school is in the office of the Surgeon General, Washington, D. C. Training will be given in certain hospitals in the Service. Schools will open on September 1, at Fort McHenry in Baltimore, and at Fox Hills, Staten Island, N. Y. The Service hospitals provide experience in surgical nursing, including orthopedic, eye, nose and throat; medical, including communicable, nervous, and mental diseases; x-ray and laboratory technique; experience in the diseases of children, and public health nursing. Gynecology and obstetrics will be provided in the second or third year of the course, through affiliations with civilian hospitals. Lectures, recitations, and laboratory work will be given in the required subjects in each hospital training school.

The course will be three years. A credit of nine months, or approximately an academic year, will be given to graduates of accredited colleges. Credit of three or more months will be given to students who have had two or more years in college or in approved technical schools that include the prescribed courses in the sciences. The three years will be divided into a probationary term of four months, a junior year of eight months, and an intermediate and senior year of twelve months each. Vacations

of one month each year will be granted. Hours of duty on the ward will be arranged with reference to the requirements of the class work. Throughout the probationary first four months, they will not exceed six hours daily, and thereafter, eight hours.

Candidates should make application in person or writing, to the Surgeon General, U. S. Public Health Service, Washington, D. C. Special consideration will be given to candidates who have taken the course in Elementary Hygiene and Home Care of the Sick, with the Red Cross, or who have served as nurses and aides in army or civilian hospitals throughout the war. Candidates must be between 21 and 35 years of age, must pass satisfactory physical examination, and must be graduates of a recognized high school or present evidence of an educational equivalent.

No tuition fee will be required. Students will be provided with quarters, subsistence, laundry and text-books through the course. They must provide their own uniforms. A monthly allowance of thirty dollars for the first two years and fifty dollars for the third year to meet these and other school expenses, will be made. Reasonable medical treatment will be supplied.

Connection between the student and the school may be severed by either side at any time during the period of training. Students who complete the prescribed course and pass physical examination, become members of the regular U. S. Public Health Service Nurse Corps. All students, except those to whom credit for collegiate or technical work have been given will be eligible for registration in any state, except those requiring three full years in a hospital. They will also be eligible for membership in the American Nurse Association and other organizations, for enrollment in the nursing service of the American Red Cross, and for post-graduate courses in the teaching, administrative, and public health fields.

Correspondence.

A LETTER FROM CHINA.

The following letter to an officer of the Massachusetts Medical Society is of great interest to all who are interested in China and its problems.

Shanghai, China, April 23, 1921.

I was one of your old students at the Harvard Medical School, where I studied from 1910 to 1914, and graduated in June, 1914. I can well remember those days when you took us around to the hospital on Francis Street (I have even forgotten the name of the hospital) and taught us valuable points in diagnosis of internal diseases. As I am a teacher myself now, I often wish that I could keep in touch with my students and see how well they are progressing. With this as an excuse, I am going to write you a few lines and tell you how I have been and what I have been doing. If it bores you too much, please do not hesitate to throw it into the waste-paper basket.

Well, graduating from Harvard in 1914, I took an internship (general appointment) at St. Luke's Hospital, New Bedford, Mass., for one year. I then went to the Boston City Hospital and took up a surgical appointment. Then I spent two years in orthopedic clinics in Boston, and finally took a regular orthopedic appointment at the Massachusetts General Hospital under Dr. Brackett. Graduating from the Massachusetts General Hospital in 1918 (April), I went to Johns Hopkins where I stayed a few months in the orthopedic clinic there. I was then asked to join the Peking Union Medical College, which is under the China Medical Board of the Rockefeller Foundation. I was in charge of the Department of Orthopedics there and helped to organize that line of work which has never before been done. The work was extremely interesting in that it was all pioneer work. Such cases as T. B. spines, T. B. hips, osteomyelitis, paralysis of different kinds, etc., were all cast aside by the medical practitioners, as it was thought nothing possible could be done to help out. I had, therefore, the time of my life to get things started. In the first place, I had to educate general practitioners to send what they think hopeless cases to me. Then I had to educate the general mass of people who are still skeptical as to the benefit one can get by operative interference. Being the only surgeon doing straight orthopedics, you can imagine what a tremendous amount of clinical material I had at my command. After working there for two years, I resigned and came to Shanghai, which is my home-town, for private practice.

I have been here for a little less than a year. Starting out in private practice is quite a different thing from starting out under some institution, for, after all, one must think of office expenses, etc. However, I must say that I have been very fortunate. Having no other orthopedic surgeon in town of course makes some difference. But here, again, I am up against all kinds of obstacles. In the first place, there is no such hospital here where private practitioners are allowed to go in and operate. There is no "Corey Hill Hospital" or "Deaconess Hospital" where any reputable surgeon or physician can send in patients to be treated by himself. They are all closed hospitals like the Massachusetts General Hospital or Boston City Hospital, where patients must be taken care of by the hospital staff. I had, therefore, to provide for my own private hospital. I am now having a small private hospital able to accommodate ten patients. This is big enough for my operative cases. Realizing my fix, I am making it accessible to any other reputable doctor.

The second difficulty is again one of medical etiquette. Up to a few years ago, there were very few doctors who had been abroad, so nothing was known about medical etiquette. Now that there are more of us who have graduated from Harvard, Pennsylvania, Johns Hopkins, etc., we recognize the medical ethics as are practiced in America or Europe. But the majority of doctors have never been abroad, so that they cannot see any reason why they cannot advertise themselves in the daily papers, in street cars, in hotels, etc. Well, that of course lessens our chance for an equal fight. For me, I am still sticking to my ideal and I firmly believe that the only way to advertise is by one's work. There is a great temptation for us to follow the general trend of affairs which means lowering the standard of work.

Connected with the above, it is difficult for us to get other doctors to refer special cases to us. For instance, I practice only orthopedics. In case a T. B. spine patient should go to visit a general practitioner the latter hesitates to send the patient to me, although he knows well enough that he cannot do anything for the patient, for he is afraid that the patient and all his family and relatives will from then on come to me. He does not realize that I will not consent to take his patient a second time, if he only sends him to me for one consultation. That's

because previously there had never been such understanding, and, as everybody fights for his own bread and butter, the patients suffer.

Third, we come against the patients themselves. The Chinese patients have yet, as a rule, to be taught to have confidence in one doctor. They expect immediate results and, if they don't get that, they wander from the office of one doctor to that of another. This makes work, especially in orthopedics, very discouraging, for you and I know that it takes a T. B. hip years to recover, but the patients do not see it.

On all of these, we have to have a firm mind and stand for our principles. Otherwise we will stumble on the obstacles and fall down in the standards of our work.

Discouraging as things sometimes seem, I still have hopes that the words of Longfellow, "Behind the clouds is the sun still shining," will come true. I am therefore putting in quite a bit of time for the work of the Medical Associations, through which I hope the doctors will come to know each other better. The history of medical associations is an interesting one. Briefly, I may say that about fifteen or twenty years ago, the medical missionaries, the mostly Americans and Britishers, formed the China Medical Missionary Association. It was at that time purely for themselves, to help each other in diagnosis, problems in hospital administration, etc. The Chinese hardly ever took a part in it, for there had been few or no Chinese doctors who have graduated from abroad and who could conform to the medical ethics of what we call "Western medicine," in distinguishing it from the old form of Chinese medicine. Recently, as there are more of us returning, and some of us have also gone into missionary work, Chinese doctors qualified abroad, have also been admitted. This is, then, one organization where the Chinese doctors and the medical missionary doctors come into contact and meet and get to know each other better.

Next, we found that even the Chinese doctors practicing Western medicine are not organized. In as large a country as China, there are now only about 600 Chinese doctors who are practicing Western medicine. We therefore were organized into the National Medical Association of China in 1915. It is, therefore, only a young organization, but we have to have a beginning. We have a journal, published quarterly, in Chinese and English. Every two years there is a medical conference at which doctors from all parts of China come to attend. Vital problems are discussed, how hospital problems could be solved, how far we should conform to recognized medical ethics, etc., are all discussed at this conference. Scientific papers are read and original research works are announced at these gatherings. As far as possible, we hold a joint conference with the China Medical Missionary Association so that in this way, it gives another opportunity for foreign and Chinese doctors to get together and know each other better.

The other local societies serve the same purposes in a smaller degree. You will be interested to see how cosmopolitan the Shanghai Medical Society is. At the last election, a month ago, the following officers were elected: President, Dr. Ransom (American); Vice-president, Dr. Barrie (English); Secretary-Treasurer, Dr. Cumming (Scotch); Councillors: Dr. Nield (English), Dr. W. S. New (Chinese), Dr. Morris (American) and Dr. Fresson (French). We have monthly gatherings at which clinical cases are shown and scientific papers read.

The other local society, the Chinese Medical Society of Shanghai, is a purely Chinese organization. We also have monthly meetings. Last time, Dr. Tso, who is also a Harvard graduate and Children's Hospital man, read a paper on the differential diagnosis of diphtheria. It was very instructive indeed.

Besides, I am teaching a course on operative surgery at the St. John's University Medical School. This course is given to the graduating class. We

operate on stiffs first, at which the different operations and amputations are taught, then for practical work, we operate on dogs where technique and asepsis are taught. The students operate by turns and I assist, and I think in this way they get the maximum benefit.

There are now in China about fifteen Harvard Medical men. It is most encouraging to see more and more of them coming out.

Well, this is about all I can write you and I am sure it has been a torture to you, so I will not proceed any further. Trusting that this finds you well and with my thanks again for your kindness in helping me out with regard to my membership in the Massachusetts Medical Society and the JOURNAL.

I am,

Yours sincerely,

WAY SUNG NEW.

MEDICAL PRACTICE AND THE FUTURE FIELD.

Mr. Editor:—

It was claimed for Bismarck that he was rather successful in the game of killing the reformer by absorbing the reform. It might be well for the future interests of the medical profession if they would look alive to see how best they could appropriate such a shrewd bit of business philosophy. Certain it is that they have some grave problems to face. All the public health, social service, child welfare and other organizations are eager to step in and "help out" in reforms which were largely made possible by the scientific advances, the conscientious and self-sacrificing efforts of men in our own field. Our medical schools have been adapting themselves to further certain ideals of equipment, research and experimentation but have left a gap, have failed to quantitatively fill the field with the number of men adequate to appropriate, apply and practice all that has been inspired by and planned in the high grade institutions. The absorption in jacking up "requirements" to the maintenance of standards has resulted in the blue pencilling of many schools where formerly medical practice was taught. This has restricted the number of orthodox schools and limited the supply of "regular" doctors and left a vacuum into which have come the good and the bad agencies necessary to and elements which menace the welfare of society.

"In the good old days" was not the doctor more supreme in the field of public health, the prevention and cure of sickness? He did not have the academic, clinical and hospital attainments and the advantages of the checking up of the laboratory of intensive and specialized study, but he was more apt to see his patient in the home. He had time, or he took time, to sit down and stop awhile as though the patient's environment and hospitality were agreeable to him. This attitude begot a state of mutual confidence and, trained as a keen observer, his eye got a picture, or his ear caught something, or he sensed a condition that gave him a valuable cue for directing the right line of treatment. Today the public is demanding more, and the general practitioner has drifted much from that former place of prestige in the community. The prominence of the specialist has been diverting his equipment and devices to many are teasing and attractive. The patient, however, must go to him and be seen under the restrictions of a necessarily more conventional and artificial environment. The office man, the technician may refine his treatment so that it specifically fits the patient detached from the home, but without the background of the home, what applies particularly to that must be more or less conventional and general, of a standardized nature.

This is the age of drift to the city, to where we seem to have more life in the apparent comforts, easements for doing things and getting about. The

habits and fashions of the age have engulfed the doctor and he has been drawn away from the country from home practice to specialization, to office, to hospital, to group practice where he can have laboratory, nursing, consultation assistance and proximity and can focalize and centre his energies. This is the age of tools, machinery and equipment facility. We hear even that the doctor says that he can do more for the country because he has a better training, equipment, that science has furnished him with definite facts unknown a generation ago and his auto is such a time-saver and ground-coverer. In this habit of haste which machinery, tools and the automobile begets, we figure so much and so closely on time-savers, efficiency, specious results that we don't realize our drift into insidious fallacies. We are ready to invest energies in the machine and the organization, but do these begot the touch, the intimate association, the reciprocal or inspiring confidence like that which made James A. Garfield say of Mark Hopkins that to sit down on a log and talk with him was a liberal education, or which the old time physician had in his going into the home and knowing what was the life there, feeling the pulse of the family, seeing the play of the mind and soul in that relaxed environment.

In the drift into intensive education, there has been a receding from the extensive field—the home, the country—natural and nature's environment. Capillary circulation has been affected and there is depletion and neglect in the place where the most wholesome springs of life must be nourished and expand. The nurse, the social service and welfare agency are already trying to bring succor here and the state has been compelled to attempt sanitary protection. The place where the physician maintained for generations a prestige and gave the best ministry for health, of the time, is now gaping and charlatans are not unmindful of what it offers for their brand of exploitation. The harvest of opportunity for service in the by-ways, in the rural districts, is truly plentiful, but the laborers of a comprehending profession are few. Rural life needs the resuscitating energies of the doctor. Our scientific advances of fifty years have reduced the number of pounds of cure but do we not see where to apply an increased number of ounces of prevention and cannot the public be trained to recompense for the latter more than what was demanded for the former?

The medical profession has never been organized and unified sufficiently to promote and conserve its soundest interests. There are such diametrically opposed viewpoints existing—contrast the psychologist with the surgeon. There is no adequate coordinating head and management and no field agents to relate sectional and individual opinions and interests. Are not medical societies but a weak skein of connection? Medical journals, to be sure, do about all that is possible through print alone. Publishers and instrument makers and dealers are always biased by and interested in the patronage of their productions. Now there are serious problems—state medicine, social and health insurance, legislative measures drawn up by agencies outside the regular medical fraternity—which have very plausible merits but which in effect are "linking" with the independence, individuality and efficiency of the medical profession, and the time is critical.

In 1890 medical college attendance in the United States was one student to every 4,300 of the population; in 1900 it had increased so as to average about one to every 3,000 of the population; but from then on, there is a steady decrease and now we have but one to every 7,500 of the population. These schools are fitting strongly for specialization—about 17 out of the graduating class of 1920 at Harvard, we are told, are planning to go into general practice. Dr. J. E. Sampson of Creston, Iowa, who has nursed along for 27 years that interesting institution to

serve rural needs there, the "Greater Community Hospital Association," gives stress to the declining vigor of the doctor in service. The average age there of the practitioner has gone up from 48 years to 57 years within a relatively short period. Dr. Sampson's recent illustrated talks at the A. M. A. session, through use of telling charts and cartoons, were most startling to those who had not given especial consideration to these problems. We find in our own state, from a recent study, conditions almost as dramatic, in the decline of vigor of men, especially in the smaller towns. In Berkshire County there are 15 out of the 32 towns without a physician; in Hampshire, 9 out of the 23; and in Franklin, 11 out of the 26. In Franklin County in 15 years there has been an actual decrease of 15% in the number of physicians with an increasing population. Consider, also, with this the necessary decrease in home medical service visits because, even in this rural district, men are specializing and doing more of the office practice. The ebbing in general practice has been most marked in the country and that there is a serious depletion due to it is shown by the physical defects of the school children and drafted men.

The Red Cross, public health associations and welfare agencies are uncovering by surveys these cases of neglect and are launching programs more or less standardized from metropolitan and academic experience and influence. Valuable auxiliary work will be done by them, but there is a man's job in the country and the old time doctor understands its points of compass as the newer organizations cannot. We need men with both a medical and a public health training for these fields and must it not mean an increase in the number of medical schools and a better distribution of them, geographically, throughout the country and such modification of their courses and program as will attract numbers and prepare adequate to fill them such fields. The rural field now makes a Macedonian cry for missionary labor. The general practitioner has always maintained a position of peculiar prestige and respect, when he has been responsive to calls for service to the public. We come to one thing or the other: either the medical profession must get together in such a way as will result in men from the schools entering these fields where they can turn their own personality and individuality to the best quality of service, or else we shall have to face what amounts to a "drive" in the urgency of welfare organization for accomplishment, toward socialistic measures, state medicine, Russianism.

Dr. Works, in the president's address, refers to the "medical discoveries and inventions of the last century made by physicians in villages" and suggests that regarding great endowments "whether the ends in view would not be better served by application of the great incomes from these endowments to the encouragement of physicians working from below upward for the relief of what is known, rather than in search for what may not exist or possibly will prove of negligible value, if found." Why not make the isolation of the country our future laboratory for medical, scientific advance? Country surgeons feel they have some substantial advantage in the environment of fresh air, natural light, etc. The true sanitarium seeks the country. If rural environment and openness is good for recuperation of cases of tuberculosis, "nerves," surgical convalescence, etc., in short, if it is a good place for the sick to get well in, why should it not be the place for the well to live in and do their best work in? The country needs good health engineering as well as good agricultural engineering to make it livable.

PAUL W. GOLDSBURY, M.D.

Deerfield, Mass., June 16, 1921.

[Dr. Goldsbury has had several applications for information relating to opportunities for medical practice. One of the letters written in reply follows below, with the name of the doctor omitted.]

Deerfield, Mass., August 5, 1921.

Yours of July 30th received. There are three or four localities in this county which seem to offer a fair opportunity for development of a practice. I know a good deal about the situations personally and then, besides, a physician in a manufacturing town in the eastern part of the state who has had to leave there on account of business depression, has shown me his correspondence with these and other localities. The attitude of such New England towns is to fear anything new or foreign—I know this from my own personal experience and the lack of progress the doctor above referred to had in getting anything satisfactory by correspondence with anyone in these places. It would be preferable to visit these places in person. I could give you names of those you could see, but it might be advisable for me not to appear so much in the matter.

The towns here are Ashfield, Bernardston, Colerain and, I might also suggest, Deerfield. This last town has the most in the way of attractions as a place of residence. In any of these towns there might be the difficulty of getting a house or tenement (there are plenty of these away from village centers). The project upon which I am at work means the bringing of better advantages to rural practitioners—hospital facilities, consultation clinics, etc., and this will ultimately help rural practitioners in all ways. As we are able to extend the work, I shall be better able to counsel further in regard to localities. If you wish to take up the matter with any of these towns by mail rather than to visit them (which seems, as I have said, preferable) I can give you the names of several to write to.

Sincerely,

TRANSLATION OF A LETTER FROM THE UNIVERSITY OF LYON.

MR. DOUGLAS FLATTERY,

Dear Sir:—

I am glad to give you news of the Institute of Bacteriology of Lyon and of the results of the work which has been followed up during the past year, thanks to the help of your Foundation.

I am sending you, by the same courier, the extensive and excellent work which Dr. Paul Durand, the holder of your scholarship, has just published for his inaugural thesis for his doctorate. This work shows that there is not only, as has been believed, one single type of bacillus diphtheria (apparently here there is a mistake in the French text), but several which give fermentative reactions to different sugars. The early findings of Doctor Durand have already been tested in America by Doctor Park and recently by another American bacteriologist, Hawn.

Mr. Durand has also studied the anti-diphtheritic serum in his experiments with the different types of diphtheria bacillus. These studies were commenced three years ago, but they have been greatly facilitated by that which we call the Douglas Flattery Foundation. I am indeed glad to send you this work and to thank you again for your generosity towards the Institute of Bacteriology. We will continue to work hard.

I am undertaking, at present, extensive researches on the tubercle bacillus in homogeneous cultures, upon the chemical composition of these cultures, with the hope of arriving at something of interest in regard to anti-tuberculous vaccine.

You led me to expect last year a visit from you to Lyon when you would come to see us. Will you let me know a little in advance, for at the time of vacations I am likely to be absent.

Will you add, dear sir, to my renewed thanks for the manner so liberal in which you aid scientific research, the expression of my kindest regards?

(Signed) PAUL COURMAND.

P. S. I have not sent the notes successively published already by Doctor Durand in the course of his researches at the Institute of Biology, for they are mentioned and enlarged upon in his thesis.

THE NEW ENGLAND SURGICAL SOCIETY.

THE NEW ENGLAND SURGICAL SOCIETY will meet in Worcester, Massachusetts, September 21 and 22, 1921.

In addition to the President's address, papers will be read under the following titles:

1. Dr. Charles Mixer of Boston: "Surgical Aspects of Intra-abdominal Tuberculosis in Infancy and Childhood."
2. Dr. James S. Stone of Boston: "Intussusception—Clinical Manifestations."
3. Dr. Frederic V. Hussey of Providence: "Acute Intussusception—Surgical Treatment and Report of Cases."
4. Dr. Daniel P. O'Brien of New Bedford, Mass.: "Local Anesthesia Plus Drug Narcosis in Major Surgery."
5. Dr. John De J. Pemberton of the Mayo Clinic (guest): "The Goltre Problem."
6. Dr. J. H. Means of Boston (guest): "The Application of the Studies of Metabolism in Practice."
7. Dr. John M. Birnie of Springfield, Mass.: "Caesarean Section."
8. Dr. John H. Cunningham of Boston: "The Treatment of Carcinoma of the Prostate." Will show lantern slides.
9. Dr. J. Dellinger Barney of Boston: "Recurrent Renal Calculi." With lantern slides.
10. Dr. Arthur H. Crosby of Boston: "Observations on Some Unusual Kidney Conditions."
11. Dr. Ralph French of Fall River, Mass.: "Diverticulitis."
12. Dr. D. F. Jones of Boston: "Acute Pancreatitis."
13. Dr. John T. Bottomley of Boston: "Infections of the Biliary Passages."
14. Dr. Franklin W. White of Boston (guest): "The Value of Medical Biliary Drainage for Diagnosis and Treatment of Diseases of the Gall-Bladder and Bile Ducts."
15. Dr. Henry C. Tinkham of Burlington, Vt.: "Artero-mesenteric Obstruction of the Duodenum."
16. Dr. Edward R. Lampton of Hartford, Conn.: "Gastrojejunal Ulcers."
17. Dr. David Cheever of Boston: "The Physiological and Pathological Basis for the Surgical Treatment of Chronic Gastric and Duodenal Ulcer."
18. Dr. Jason Mixer of Boston: "Lesions of the Spinal Cord and Results after Operative Treatment."
19. Dr. George C. Wilkins of Manchester, N. H.: "Experiences with the Use of Radium."
20. Dr. Frank Lahey of Boston: Title to be announced later.

The dinner will be an important feature of the meeting.